16. JAHRESTAGUNG DGEpi

20.–22. September 2021 | digital

ABSTRACTBOOK

DG epi DEUTSCHE GESELLSCHAFT FÜR EPIDEMIOLOGIE

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GRUSSWORTE

Liebe Kolleginnen und Kollegen,

lange hatten wir gehofft, dass die 16. Jahrestagung der Deutschen Gesellschaft für Epidemiologie vom 20. bis zum 22. September vor Ort in Würzburg stattfinden kann, und mit großem Bedauern müssen wir auch in diesem Jahr von einer Präsenzveranstaltung Abstand nehmen. Besonnenheit und Vorsicht und die Entwicklung der Pandemielage im ersten Halbjahr 2021 haben uns zu dieser Entscheidung geführt. Auch wenn wir also wieder auf das persönliche Treffen verzichten müssen: es ist dem Organisationsteam gelungen, ein rundes und spannendes wissenschaftliches Programm auf die Beine zu stellen.

Unter dem Motto „Krankheiten erforschen – Gesundheit erhalten“ werden die großen aktuellen und klassischen Themen der Epidemiologie aufgegriffen. Wir sind gespannt auf drei hochkarätige Keynotes, zahlreiche thematisch vielfältige Workshops, Tutorien und Vorträge. Nicht zuletzt sind die Schnittstellen und Interaktionen mit den Institutionen des Öffentlichen Gesundheitsdienstes von hoher Bedeutung und dringender Aktualität, nicht nur zu Pandemiezeiten. Umso erfreulicher ist es, dass wir dies in der gemeinsamen Sitzung am Mittwoch unter dem Titel „DGEpi 2021 meets ÖGD 2021: Stärkung des ÖGD in der wissenschaftlichen Community“ thematisieren können, die zum Bayerischen Kongress für den Öffentlichen Gesundheitsdienst überleitet.

Im Namen des Vorstandes der Deutschen Gesellschaft für Epidemiologie gratuliere ich dem lokalen Organisationsteam, besonders Felizitas Eichner, Julia Schmidt, Lilly Brandstetter, Christine Miller und Peter Heuschmann, zum überzeugenden Tagungskonzept und bedanken uns für die engagierte Zusammenarbeit. Wir danken den AG-Sprecher:innen und allen, die Beiträge eingereicht haben und verantworten – Ihre Kreativität, Aktivität und Verbundenheit sind das Fundament und das Rückgrat unserer Fachgesellschaft.

Wir freuen uns auf spannende Tagungsbeiträge, engagierte Diskussionen und viele neue Impulse für die Herausforderungen, die noch vor uns liegen.

EVA GRILL
Präsidentin der Deutschen Gesellschaft für Epidemiologie

Liebe Teilnehmerinnen und Teilnehmer am Kongress der Deutschen Gesellschaft für Epidemiologie,

es ist mir eine große Freude, Sie im Namen des Instituts für Klinische Epidemiologie und Biometrie als Ausrichter der 16. Jahrestagung der Deutschen Gesellschaft für Epidemiologie (DGEpi) 2021 herzlich willkommen zu heißen. Wir hätten Sie sehr gerne persönlich in Würzburg begrüßt und bedauern sehr, dass aufgrund der Pandemie der Kongress auch in diesem Jahr erneut virtuell stattfinden muss.

Das Institut für Klinische Epidemiologie und Biometrie (IKE-B) wurde im Oktober 2011 neu an der Universität Würzburg eingerichtet. Die Forschungsschwerpunkte des IKE-B umfassen die Bereiche klinische Epidemiologie, Versorgungsforschung, Digitalisierung, Präventionsforschung sowie klinische Forschung. Aus diesem Grund haben wir das Motto der DGEpi 2021 „Krankheiten erforschen – Gesundheit erhalten“ gewählt. Dieser Leitgedanke soll verdeutlichen, wie wir als Epidemiologinnen und Epidemiologen in enger Zusammenarbeit mit zahlreichen anderen Disziplinen die relevanten Fragen zu Krankheitsentstehung, Krankheitsverläufen und Therapien beantworten.

Im Anschluss an die Tagung richtet das Bayerische Landesamt für Gesundheit und Lebensmittelsicherheit (LGL) den diesjährigen 9. Bayerischen Kongress des Öffentlichen Gesundheitsdienstes mit dem Titel „One Health – eine Gesundheit“ aus. Die vergangenen beiden Jahre haben uns gezeigt, wie wichtig die Zusammenarbeit verschiedener Akteure und Fachdisziplinen gerade auch im Bereich des öffentlichen Gesundheitsdienstes ist, um die Gesundheit aller Menschen zu schützen und zu erhalten.

Wir haben für Sie ein attraktives Programm zusammengestellt, das sich im Rahmen einer Reihe von Symposien und Hauptvorträgen mit aktuellen Aspekten der klinischen Epidemiologie beschäftigt – einschließlich der derzeitigen Herausforderungen der Pandemie.

Ich möchte mich an dieser Stelle bei den Sprecherinnen und Sprechern sowie den Teilnehmerinnen und Teilnehmern des Kongresses für die umfassende Programmgestaltung bedanken. Mein besonderer Dank gilt auch allen Mitarbeiterinnen und Mitarbeitern des IKE-B sowie insbesondere den Mitgliedern des Planungskomitees, die diesen virtuellen Kongress mit herausragenden Engagement vorbereitet und gestaltet haben.

In diesem Sinne wünsche ich Ihnen allen nun einen abwechslungs- und erkenntnisreichen Kongress!

PETER U HEUSCHMANN
Vorstand des Instituts für Klinische Epidemiologie und Biometrie (IKE-B) der Julius-Maximilians-Universität Würzburg

Liebe Teilnehmerinnen und Teilnehmer am Kongress der Deutschen Gesellschaft für Epidemiologie,

als Dekan der Medizinischen Fakultät der Universität Würzburg und Präsident des Medizinischen Fakultätentages darf ich Sie herzlich zur 16. Jahrestagung der Deutschen Gesellschaft für Epidemiologie (DGEpi) 2021 begrüßen.

Der Leitgedanke des Kongresses „Krankheiten erforschen – Gesundheit erhalten" unterstreicht die zunehmende Bedeutung der Fachdisziplin Epidemiologie, die als interdisziplinäres Querschnittsfach entscheidende Erkenntnisse zu Entstehung und Verläufen von Erkrankungen liefert. Als Methodenwissenschaft für vernetzte Forschung im Bereich der Universitätsmedizin stellt die Epidemiologie zudem richtungsweisende Ansätze zu Prävention und Behandlung von Erkrankungen bereit und liefert Lösungen zu den großen Herausforderungen für die Gesellschaft bei der Bewältigung von Volkskrankheiten. Die Bedeutung der Epidemiologie wurde uns allen in der jetzigen Pandemie noch einmal sehr deutlich vor Augen geführt. Die Epidemiologie hat mit der Erhebung von Daten zu Entstehung und Verlauf der Corona-Erkrankung entscheidend zur Bewältigung der Pandemie beigetragen.

Das Fachgebiet der Epidemiologie nimmt auch einen immer wichtigeren Stellenwert in der zukünftigen Ausbildung unserer Medizinstudierenden ein. Hierzu zählt beispielsweise der Beitrag der Methodenwissenschaft Epidemiologie zur Vermittlung medizinisch-wissenschaftlicher Fertigkeiten als übergeordnete Kompetenz der Wissenschaftlichkeit im Medizinstudium. Zudem steht die Epidemiologie für die Stärkung definierter neuer Bereiche wie Prävention und Gesundheitsförderung, Public Health und öffentliches Gesundheitswesen, sowie Digitalisierung und Medizininformatik. Das Institut für Klinische Epidemiologie und Biometrie liefert als breit aufgestellte Einrichtung wichtige Beiträge zur interdisziplinären Weiterentwicklung dieser spannenden Themenfeldern.

Wir freuen uns auf anregende Diskussionen und neue Impulse im wissenschaftlichen Austausch und wünschen Ihnen allen einen erkenntnisreichen Kongress!

PROF. DR. MATTHIAS FROSCH
Dekan der Medizinischen Fakultät der Julius-Maximilians-Universität Würzburg

Sehr geehrte Damen und Herren,

liebe Teilnehmerinnen und Teilnehmer am Kongress der Deutschen Gesellschaft für Epidemiologie,

es ist mir eine große Freude, Sie zu Ihrem diesjährigen virtuellen Jahreskongress auch seitens des Bayerischen Landesamtes für Gesundheit und Lebensmittelsicherheit (LGL) herzlich zu begrüßen. Sie haben Ihren Kongress im Jahr 2021, der diesmal als Online-Veranstaltung stattfindet, unter den Gedanken „Krankheiten erforschen – Gesundheit erhalten“ gestellt. Sie haben ihm damit eine zukunftsweisende Ausrichtung gegeben: Die Erforschung der Ursachen, Verläufe und Heilungsaussichten von Erkrankungen und der Erhalt der Gesundheit bilden nicht nur ein komplementäres Nebeneinander, sondern sind auf das Engste miteinander verknüpft. Beide dienen der Ermöglichung einer jeweils bestmöglichen Gesundheit. Das Motto berührt auch das Desiderat einer präventiven Wende im Gesundheitssystem und spricht damit ein Kernanliegen im Dienst der öffentlichen Gesundheit an: Bedingungen zu schaffen, in denen Menschen gesund sein können.

Das LGL richtet den diesjährigen 9. Bayerischen Kongress des Öffentlichen Gesundheitsdienstes in partnerschaftlicher Abstimmung mit dem Institut für Klinische Epidemiologie und Biometrie der Universität Würzburg als Ausrichter der 16. Jahrestagung der Deutschen Gesellschaft für Epidemiologie (DGEpi) 2021 aus. Die Jahre 2020 und 2021 haben wie kaum eine Zeit zuvor die Bedeutung der interdisziplinären Kooperation in der Wissenschaft wie auch die Bedeutung der interprofessionellen Zusammenarbeit in der Praxis deutlich gemacht. Die Epidemiologie ist dabei eine Kernwissenschaft im Dienst der öffentlichen Gesundheit. Ihre Erkenntnisse und fortlaufenden Sachstandsberichte sind auch von einem modernen Pandemiemanagement nicht wegzudenken – im Gegenteil, sie haben in ihren fachlichen Vertiefungen die in historischer Perspektive unvergleichlich erfolgreiche Bewältigung dieser gesamtgesellschaftlichen Herausforderung wesentlich möglich gemacht.

Das Motto des Kongresses für den Öffentlichen Gesundheitsdienst „One Health – eine Gesundheit“ knüpft an diese Interdisziplinarität an und will, neben den vielen konkreten Themen des ÖGD, auch den Blick weiten für den zukünftigen Horizont einer vernetzten Gesundheit von Menschen, Tieren und dem uns allen tragenden Ökosystem unseres blauen Planeten. Unter dem Titel „DGEpi 2021 meets ÖGD 2021: Stärkung des ÖGD in der wissenschaftlichen Community“ gestalten wir gemeinsam mit der DGEpi eine Diskussion zur Stärkung der wissenschaftlichen Basis des Öffentlichen Gesundheitsdienstes als medizinisches Fachgebiet wie auch als Praxisfeld staatlicher Daseinsvorsorge.

Wir möchten Sie dazu herzlich einladen – und gerne auch darüber hinaus zum virtuellen Besuch unseres diesjährigen Partnerkongresses.

WALTER JONAS
Präsident, Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit

KEYNOTES

K-01

METHODOLOGICAL CHALLENGES IN LEARNING HEALTHCARE SYSTEMS

Groenwold R.

Department of Clinical Epidemiology, Universität Leiden

Learning healthcare systems (LHS) are increasingly popular and worldwide there are many activities to set up such systems. Currently the practical aspects (infrastructure, rules, regulations) receive most of the attention. However, methodological aspects of an LHS are overlooked, leading to hidden biases. This creates a danger, because incorrect learning may have a detrimental impact on individual patients and the care they receive. In this talk various methodological challenges in learning healthcare systems will be discussed, including their origin and possible directions to overcome these challenges. Focus will be on the interactions between users in an LHS (e.g., doctors) and the electronic health records data the LHS consists of, which is called doctor-data interaction.

K-02

APPLYING THE INNOVATIVE TRIALS WITHIN COHORTS (TWICS) DESIGN WITHIN DUTCH CANCER COHORTS

May A. M.

Department of Epidemiology, Julius Center Research Program Cancer, Universität Utrecht

The Trials within Cohorts (TwiCs) design, also known as the cohort multiple randomized controlled trial (cmRCT) design, was proposed as alternative to conventional pragmatic RCTs evaluating for example a lifestyle intervention. TwiCs has the potential to overcome some challenges faced in (pragmatic) RCTs, such as difficult recruitment, drop-out after randomization to control and contamination.
In a TwiCs, the intervention study is performed within an observational cohort with regular outcome measurements. In such a cohort, a two-stage consent procedure is implemented. At cohort entry, consent is asked for participation in the cohort and second to be randomized into future intervention studies (stage 1). The second stage starts after randomization into an intervention study. Here, patients allocated to the intervention group are offered an intervention and asked to give informed consent to receive the intervention. The control group is not informed about being allocated to the control arm. Cohort-based outcome measured are used for the comparison of effects between study groups. During the presentation, two Dutch cohorts including patients with breast (UMBRELLA) and colorectal (PLCRC) cancer and using the two-stage consent procedure will be introduced. Furthermore, the UMBRELLA Fit study will be presented as a TwiCs example.
The purpose of UMBRELLA-Fit was two-fold. The first aim was to determine the applicability of the TwiCs design in the field of exercise-oncology. The second aim was to investigate the effect of an exercise intervention on quality of life and fatigue in patients after treatment for breast cancer when using the TwiCs design. Experiences with the design and statistical considerations will be shared. Finally, recommendations for “To TwiCs or not to TwiCs” will be provided.

K-03

FROM EXPLAINING TRENDS TO POLICY DECISION MAKING, TRANSLATING EPIDEMIOLOGICAL EVIDENCE TO PUBLIC HEALTH ACTION

O’Flaherty M.

Department of Public Health and Policy, Universität Liverpool

Non-Communicable diseases burden is and will continue to be a dominant issue for Public Health agendas.

Prof O’Flaherty will discuss how public health policy needs to be informed by a broad set of evidence of different nature. Specifically, and using CVD prevention as a theme, he will discuss his work on explaining mortality trends and using modelling approaches to inform preventative strategies, particularly when the aim is to reduce disease burden and health inequalities.

Prof O’Flaherty leads the Non-Communicable Disease (NCD) Prevention and Food Policy Research Team at the Department of Public Health Policy and Systems in the University of Liverpool, focusing on informing NCD prevention agendas and reducing health inequalities.

VORTRÄGE

O-01 | AG SESSION 01 – INFEKTIONSEPIDEMIOLOGIE

O-01-01

CHARACTERISTICS AND OUTCOMES OF COVID-19 PATIENTS IN MUNICH HOSPITALS – A SECONDARY DATA ANALYSIS

Schaffner M., Brandt M., Nagel C., Wohlrab D., Barth L., Schmidt S., **Beyerlein A.**

Department of Health, Munich, Germany

Introduction

The SARS-CoV-2 pandemic put an unprecedented burden on healthcare systems, particularly on hospitals and intensive care units (ICU). Until now, there are only few studies available describing the characteristics and outcomes for COVID-19 patients in German hospitals.

Methods

In this study, we combine secondary data of all patients with a confirmed COVID-19 infection from 28 hospitals in Munich which are originally collected based on § 21 KHEntgG (hospital remuneration act). Data collection is still ongoing. Based on the data available up to now, we conducted descriptive analyses and estimated mortality risk with respect to different patient characteristics by calculating odds ratios (OR) with 95% confidence intervals (CI).

Results

By December 2020, our data included 5436 patients, of which 1107 (20.4%) were treated on ICU, 588 (10.8%) were ventilated, and 666 (12.3%) died in hospital. The mean age at hospitalization was 64.6 years, and 2426 (44.6%) of the patients were female. The mortality risk for patients older than 60 years was much higher compared to patients aged 60 years or younger (OR 10.0 [95% CI 7.4, 13.8]), while there was no significant difference in mortality risk between men and women (OR 1.1 [0.9, 1.3]). Further, we observed associations with increased mortality risk for ICU admission (OR 1.7 [1.3, 2.2]), ventilation (OR 3.7 [2.7-5.0]), and hospitalization during the second infection wave (July – December; OR 1.8 [1.5-2.1]).

Conclusions/Outlook

This study allows for a comprehensive view on characteristics and outcomes of COVID-19 patients in Munich clinics. Our data confirm that increased age is the most dominant risk factor for COVID-19 mortality. Analyses of the hospital data from 2021 will give further insights, also with respect to the potential impact of additional infection waves.

O-01-02

ESTIMATING EFFECTIVE INFECTION FATALITY RATES DURING THE COURSE OF THE COVID-19 PANDEMIC IN GERMANY

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Introduction

The infection fatality rate (IFR) of the Coronavirus Disease 2019 (COVID-19) is an important figure in the context of this pandemic. In contrast to the case fatality rate (CFR) which is based on the number of confirmed cases, the IFR depends on the total number of infected individuals. Multiple seroprevalence studies have been conducted to estimate the IFR.

Methods

Using German surveillance data and age-specific IFR estimates from four international studies, this work investigates time-dependent variations in effective IFR over the course of the pandemic in 2020. Three methods for estimating (effective) IFRs are presented: (a) population-averaged IFRs based on the assumption that the infection risk is independent of age and time, (b) effective IFRs based on the assumption that the age distribution of confirmed cases approximately reflects the age distribution of infected individuals, and (c) effective IFRs accounting for age- and time-dependent dark figures of infections.

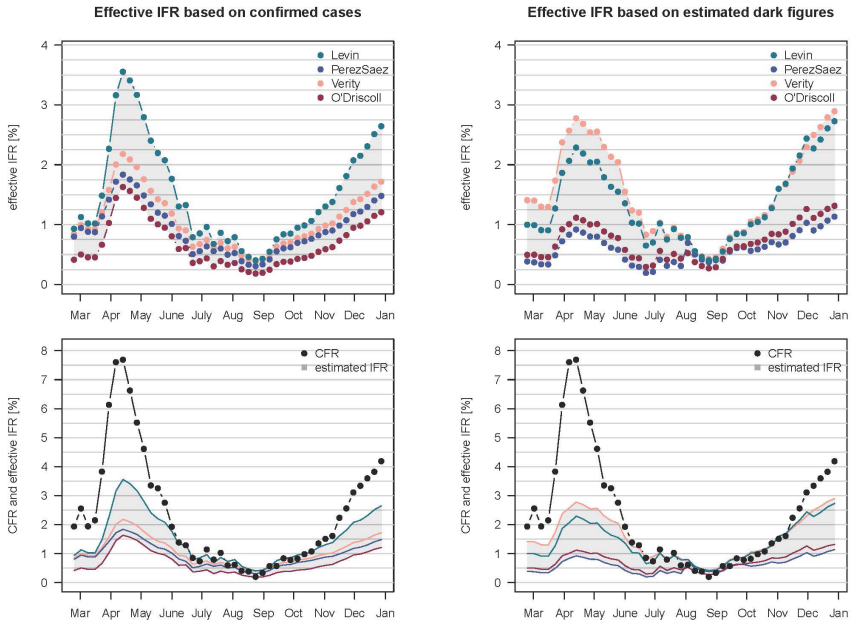
Results

As the age distribution of infections is changing during the course of the pandemic, effective IFRs are estimated to vary over time. Particularly during the first and second waves in Germany, there has been a pronounced shift in the age distribution of confirmed cases towards older age groups, resulting in larger effective IFR estimates. The temporary increase in effective IFR during the first wave is estimated to be smaller but still remains when adjusting for age- and time-dependent dark figures. A comparison of effective IFRs with observed CFRs shows that a substantial fraction of the time-dependent variability in observed mortality can be explained by changes in the age distribution of infections.

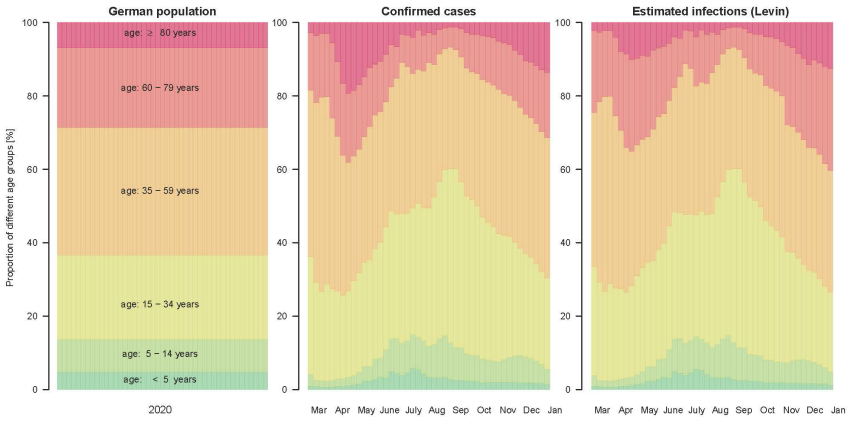
Conclusions/Outlook

Since the mortality of COVID-19 largely increases with age, it is important to take the changing age distribution of infections into account to determine the effective IFR. Further research is warranted to obtain timely age-stratified IFR estimates, particularly in light of new variants of the virus.

Grafik auf folgender Seite



Estimated effective IFR and observed CFR
Estimated (weekly) effective infection fatality rates in Germany for the year 2020, based on four different age-specific IFR estimates (i). The left plots refer to the estimates with method (b) based on the age distribution of confirmed cases, while the plots on the right refer to the estimates with method (c) based on the age distribution of infections via estimated age- and time-dependent dark figures. The lower plots additionally display observed CFRs in Germany.



Evolving age distributions

Age distributions of the general German population in 2020 (left plot), of weekly confirmed cases (central plot) and of estimated weekly numbers of infections (right plot) based on the age-specific IFR estimates by Levin et al. (European Journal of Epidemiology, 2020).

O-01-03

PITFALLS AND SOLUTIONS IN CASE FATALITY RISK ESTIMATION – A MULTI-COUNTRY ANALYSIS ON THE ROLE OF DEMOGRAPHICS, SURVEILLANCE, TIME LAGS BETWEEN REPORTING AND DEATH AND HEALTHCARE SYSTEM CAPACITY ON COVID-19

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Introduction

European countries report large differences in COVID-19 case fatality risk (CFR) and high variation over the year. CFR estimates may both depend on the method used for estimation and of country-specific characteristics. While crude methods simply use cumulative total numbers of cases and deaths, the CFR can be influenced by the demographic characteristics of the cases, case detection rates, time lags between reporting of infections and deaths and infrastructural characteristics, such as healthcare capacities.

Methods

We used publicly available weekly data from the national health authorities of Germany, Italy, France and Spain on case and death numbers by age group connected to COVID-19 for the year 2020. We propose to use smoothed data of national weekly test rates for case adjustment and investigated the impact of different time lags from case reporting to death on the estimation of the CFR. Finally, we described the association between case fatality and the demand for hospital beds for COVID-19, taking into account national hospital bed capacities.

Results

Crude CFR estimates differ considerably between the four study countries with end-of-year values of approximately 1.9%, 3.5%, 2.5% and 2.7% for Germany, Italy, France and Spain, respectively. Age-adjustment reduces the differences considerably, resulting in values of 1.61%, 2.4% and 2% for Germany, Italy and Spain, respectively. France's age-specific data was restricted to hospitalised cases only and is therefore not comparable in that regard.

Conclusions/Outlook

International crude International CFR time series show smaller differences when adjusting for demographics of the cases or the test rates. Curves adjusted for age structure, testing or time lags show smaller variance over the year and a smaller degree of non-stationarity. The data does not suggest any connection of CFRs to hospital capacities for the four countries under study.

O-01-04

OPTIMIZED COVID-19 VACCINATION STRATEGY CONSIDERING LIMITED VACCINATION CAPACITIES – A DECISION-ANALYTIC MODELING STUDY

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Introduction

Systematic investigations of tradeoffs between varying COVID-19 vaccination strategies is essential, particularly in the initial phases when vaccine availability is limited. We aimed to evaluate targeted COVID-19 vaccination strategies, in order to minimize COVID related hospitalizations and deaths in Austria.

Methods

A dynamic agent-based population model was applied to evaluate different vaccination strategies targeting the elderly (65 ≥ years), middle aged (45–64 years), younger (15–44 years), vulnerable (risk of severe disease due to comorbidities), and healthcare workers (HCW) to minimize COVID-19-related hospitalizations and deaths, compared to no vaccination. First, outcomes were optimized for an initially available vaccine batch for 200,000 people. Second, stepwise optimization (3x750 000 vaccination) was performed, deriving a prioritization sequence for 2.5 million people. We considered sterilizing and non-sterilizing immunity, with different assumptions of effectiveness, over a 6-month period. The project was advised by a Standing Policy and Expert Panel, consisting of decision makers, clinical, ethical and modeling experts.

Results

Starting vaccinations with the elderly and vulnerable, followed by the middle-aged, HCW, and younger individuals, achieved the maximum reduction of hospitalizations and deaths. Optimizations for vaccinating 2.5 million individuals yielded the same prioritization and avoided about one third of deaths and hospitalizations. Prioritizing HCW is slightly less effective but may be considered for occupational safety.

Conclusions/Outlook

Our study shows that elderly and vulnerable people should be prioritized for vaccination until vaccines are sufficiently available to minimize COVID-19-related hospitalizations and deaths. Additional analyses are required to determine the optimal vaccination sequence of subsequent subgroups, the role of emerging viral mutations and the explicit tradeoffs between health, social and economic outcomes.

O-01-05

PREVALENCE OF SARS-COV-2 IN GERMANY: A MULTI-LOCAL POPULATION-BASED SEQUENTIAL STUDY

Harries M.[1], Gornyk D.[1,2], Hernandez P.[1], Strengert M.[1,4], Castell S.[1], Kerrinnes T.[5], Glöckner S.[1,3], Ortmann J.[1], Kessel B.[1], Kemmling Y.[1], Lange B.[1,3], Krause G.[1,4,3]

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[5] Helmholtz-Institute for RNA-based Infection Research, RNA-Biology of Bacterial Infections, Würzburg, Germany

Introduction

In Germany, there still is an urgent need to control the COVID-19 spread and take measures to respond to this crisis. We estimated the SARS-Cov-2 seroprevalence from 07/2020 until 02/2021 among the German population allowing comparison between regions, time points, socio-demographic and health-related factors in order to estimate undetected past infections.

Methods

We conducted a sequential multi-local seroprevalence study by sampling adults in five German regions differently hit by the pandemic. We recruited participants in Reutlingen, Freiburg, Aachen, Osnabrück and Magdeburg using random sampling based on registration office by age, sex and geographic area. We sampled each region twice, which permits to monitor seroprevalence progression throughout the epidemic. We calculated weights to adjust our sample to match sex, and age distribution within the counties. We report both, weighted and unweighted prevalence of SARS-CoV-2 antibodies. We assessed the association of seropositivity with demographic, socioeconomic and health factors by using a standardised interview.

Results

As of February 2021, we received 19.205 blood specimens (median age: 55 years, 51% females). The overall prevalence of antibodies to SARS-CoV-2 in our sample was 2.0% (95%CI: 1.7-2.2; time point (t) 1) and 3.9% (95%CI: 3.5-4.6; t2). It ranged from 2.4% (95%CI: 1.8-3.1%) -5.4% (95%CI: 4.4-6.6%). Infection fatality estimates ranged from 0.2-2.4%. Lower education was associated with higher, smoking with lower seropositivity.

Conclusions/Outlook

Underreporting was high throughout the whole period and was heterogeneous among the regions. Many questions related to immunity have not yet been clarified, e.g. how long this protection lasts. Furthermore, several objectives of the study need further investigation e.g. long-term behavioural effects.

O-01-06

PREVALENCE AND CORRELATES OF NON-UTILIZATION OF HEALTH CARE SERVICES AMONG ADULTS DURING THE FIRST PHASE OF THE COVID-19 PANDEMIC: RESULTS FROM THE POPULATION-BASED COMOLO STUDY

Heidemann C., Reitzle L., Schmidt C., Fuchs J., Prütz F., Scheidt-Nave C.

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Introduction

Only few studies in Germany have analyzed the non-utilization of health care services during the COVID-19 pandemic based on population-based surveys taking the health care consumers' perspective into account.

Methods

Participants (≥18 years) from four local surveys as part of the CORONA-MONITORING lokal (CoMoLo) study in 2020 completed a detailed questionnaire (N=8017). Questions on non-utilization of health care services following the introduced contact restrictions in March 2020 were included (appointment cancelling in ambulatory care, postponement of hospital admission/surgery, deciding against an emergency room visit, deciding against a doctor visit despite health problems). Information on sociodemographics, health status and telemedicine utilization was also obtained.

Results

One-third reported non-utilization of at least one of the surveyed health care services. Cancellations of check-up appointments with a dentist (15%) and a medical specialist (12%) were most frequent, followed by cancellations of physio-, ergo- or speech therapies (6%), check-up appointments with a general practitioner (6%), psychotherapy (2%) and scheduled hospital admissions/surgeries (2%) and not seeking emergency room care (0.7%). About 10% reported they decided against doctor's visit despite having health problems. Factors associated with non-utilization of ambulatory care despite health problems included being <35 years and female, lower self-rated health, a chronic disease/health problem, a history of physician-diagnosed depression, and telemedicine use.

Conclusions/Outlook

The majority of adults used scheduled health care services since the introduction of contact restrictions. However, one out of 10 abstained from a physician visit despite having health problems, and these persons were particularly likely to report a history of depression. Telemedicine was particularly used as an alternative to physician visits in this group, but may not be sufficient, especially in case of periodically renewed containment measures.

O-01-07

INDIVIDUAL SOCIAL CONTACT DATA REFLECTED SARS-COV-2 TRANSMISSION DYNAMICS DURING THE FIRST WAVE IN GERMANY BETTER THAN POPULATION MOBILITY DATA – AN ANALYSIS BASED ON THE COVIMOD STUDY

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Introduction

The effect of contact reduction measures on infectious disease transmission can only be assessed indirectly and with considerable delay. However, individual social contact data and population mobility data can offer near real-time proxy information.

Aim

To compare social contact data and population mobility data with respect to their ability to predict transmission dynamics during the first wave of the SARS-CoV-2 pandemic in Germany.

Methods

We quantified the change in social contact patterns derived from self-reported contact survey data collected by the German COVIMOD study from 04/2020-06/2020 (compared to the pre-pandemic period), and estimated the percentage mean reduction in the effective reproduction number R(t) over time. We compared these results to the ones based on R(t) estimates from open-source mobility data (Google and Apple) and to R(t) values provided by the German Public Health Institute, RKI.

Results

The number of daily reported contacts measured per participant during all COVIMOD waves was considerably lower in comparison to corresponding to the strictest contacts reduction measures. Thereafter, the reduction in contacts dropped continuously to a minimum of 73% in late June (Fig. 1). R(t) estimates based on social contacts underestimated measured R(t) values slightly in the time of strictest contact reduction measures but predicted R(t) well thereafter. R(t) estimates based on mobility data overestimated R(t) considerably throughout the study.

Conclusions/Outlook

R(t) prediction accuracy based on contact survey data was superior to the one based on population mobility data, indicating that measuring changes in mobility alone is not sufficient for understanding changes in transmission dynamics triggered by public health measures.

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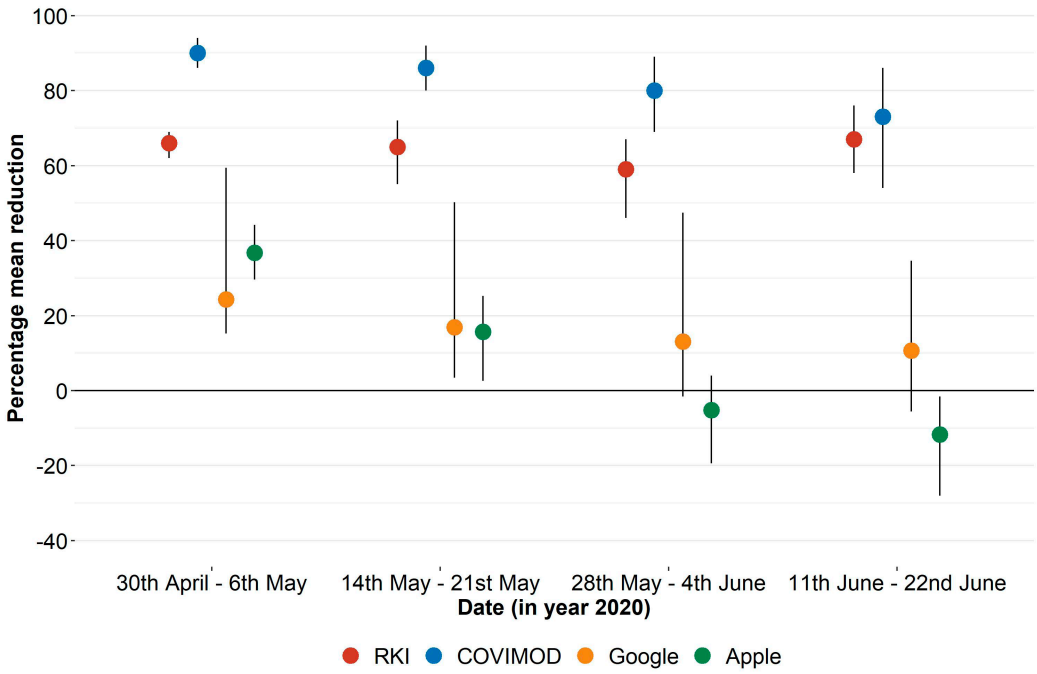

Fig. 1 Comparison of R(t) estimates obtained based on different input data.

O-01-08

DEPRESSION INCREASES THE SUSCEPTIBILITY TO SELF-REPORTED INFECTIONS IN TWO GERMAN COHORT STUDIES

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Introduction

In several claims-based studies, depression has been associated with an increased risk of being hospitalized with acute infections. However, it remains unclear if this observation is causal, and can be generalized to an increased susceptibility to infections.

Methods

We used data of the sixth follow-up of the BiDirect (n=1,167; study with special focus on depression) and the HaBIDS (n=1,151; population-based random sampling) cohort studies to estimate the causal effect of depression on mild infections, which were assessed with identical infection susceptibility questionnaires in both studies. We used the Center for Epidemiologic Studies Depression Scale (CES-D-20) and ICD-diagnoses F32 (episode of depression) vs. F33 (recurrent depressive disorder) to examine a potential dose-response relationship.

Results

BiDirect participants with depression (41%, n=483) had an elevated risk for lower respiratory tract infections (IRR 1.54, 95% confidence interval 1.18–2.00), gastro-intestinal infections (2.03 [1.72–2.40]), fever (1.51 [1.13–2.02]) as well as intake of antibiotics (1.48 [1.18–1.86]) after adjusting for confounders identified by a directed acyclic graph approach. There was a clear dose-response relationship with those with higher CES-D scores showing more infections. Effect sizes were similar in HaBIDS (5% individuals with depression, n=52).

Conclusions/Outlook

We found an increased risk for self-reported infections in individuals with depression, as well as a dose-response relationship between depression severity and infection frequency. Further research is needed to determine causal immunological pathways and to differentiate the components of the bidirectional relationship between depression and infection.

O-01-09

PREDICTIVE PERFORMANCE OF RAPID DIAGNOSTIC TESTS FOR FALCIPARUM MALARIA AND ITS MODELLED IMPACT ON INTEGRATED COMMUNITY CASE MANAGEMENT OF MALARIA IN SUB-SAHARAN AFRICAN FEBRILE CHILDREN

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Introduction

Integrated community case management (iCCM) of malaria complements and extends the reach of public health services to improve access to timely diagnosis and treatment of malaria. Such community-based programmes rely on standardised test-and-treat algorithms implemented by community health workers using malaria rapid diagnostic tests (RDTs). However, due to a changing epidemiology of fever causes, positive RDT results might not correctly reflect malaria-disease in all malaria-endemic settings in Africa. This study modelled diagnostic predictive values for all malaria-endemic African regions as an indicator of the programmatic usefulness of RDTs in iCCM campaigns on malaria.

Methods

Positive predictive values (PPV) and negative predictive values (NPV) of RDTs for clinical malaria were modelled. Assay-specific performance characteristics stem from the Cochrane Library and publicly available data on the proportion of malaria-attributable fevers among African febrile children under five years of age were used as prevalence matrix.

Results

Average country-level PPVs vary considerably: Ethiopia had lowest PPVs (HRP2-assay: 17.35%; pLDH-assay: 39.73%) and Guinea the highest PPVs (HRP2-assay: 95.32%; pLDH-assay: 98.46%). On the contrary, NPVs were above 90% in all countries (HRP2-assay: ≥94.87%; pLDH-assay ≥93.36%).

Conclusions/Outlook

PPVs differed considerably within Africa when used for screening of febrile children indicating unfavourable performance of RDT-based test-and-treat algorithms in low-PPV settings. This suggests that the administration of antimalarials alone may not constitute causal treatment in the presence of a positive RDT result for a substantial proportion of patients particularly in low-PPV settings. Therefore, current iCCM algorithms should be complemented by information on other setting-specific major causes of fever.

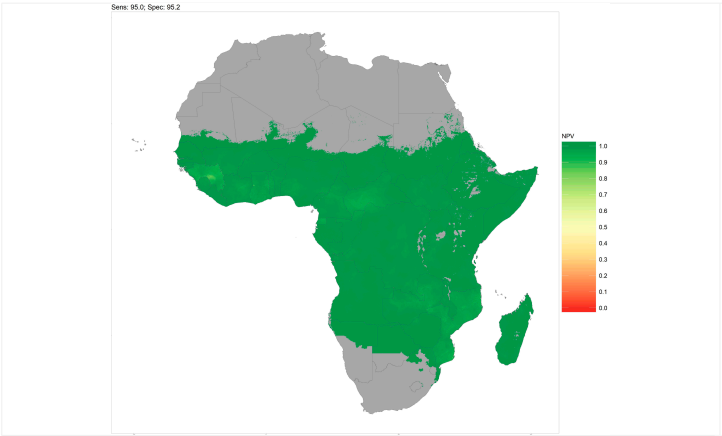

Figure 3
HRP-2-based malaria rapid diagnostic tests (RDTs). Negative predictive values (NPVs) reflect the probability that malaria is not the causal reason for fever in the presence of a negative test result in children aged ≤ five years. Probability measure from 0 to 1. Sens ... Sensitivity; Spec ... Specificity

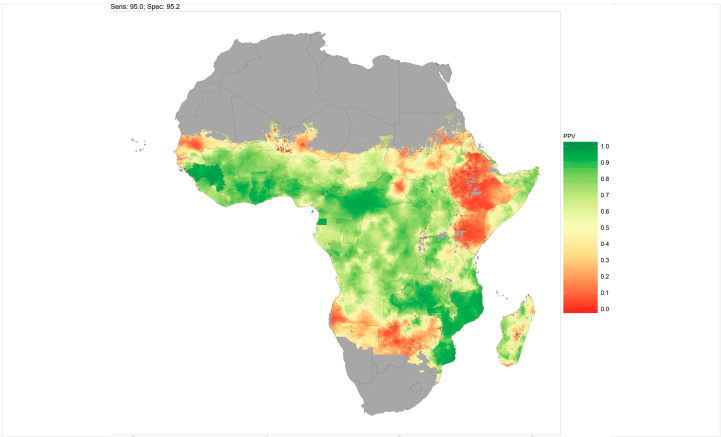

Figure 2
HRP-2-based malaria rapid diagnostic tests (RDTs). Positive predictive values (PPVs) reflect the probability of malaria as causal reason for fever in the presence of a positive test result in children aged ≤ five years. Probability measure from 0 to 1. Sens ... Sensitivity; Spec ... Specificity

O-01-10

CONNECT ONE HEALTH DATA FOR INTEGRATED DISEASE PREVENTION – PROJECT INTRODUCTION AND FIRST RESULTS

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Introduction

Although about 2/3 of infectious diseases in humans are caused by zoonotic pathogens, surveillance of infections in humans and animals is still predominantly separate. Many antibiotic-resistant pathogens are also to be assessed as One Heath-relevant. In order to improve monitoring and surveillance, the "Connect One Health Data" project aims to integrate data from the human and animal health sectors (www.one-health-hannover.de). The initial focus is on identifying and describing data sources on zoonotic and antibiotic-resistant pathogens in human and veterinary medicine. Use cases will be developed to evaluate the integrated data analysis.

Methods

The collection of data sources focuses primarily on Germany and specifically on Lower Saxony. So far, over 20 potentially One Health-relevant data sources have been identified. On the human side, a main source is the database for notifiable diseases according to the Infection Protection Act, in which human cases of 63 notifiable diseases and pathogens are recorded. For more than 50 of these pathogens or diseases, surveillance has been running continuously since 2001. There are similar databases on the veterinary surveillance side, e.g. the Animal Disease Notification System (TSN) or the Zoonoses Monitoring.

Results

To collect the metadata of these data sources a structured documentation form was developed and implemented as a database. Currently we gather the metadata of the One Health data sources. At the conference, these data sources and their characteristics will be described. A possible use case and a concept for integrating the data will also be presented.

Conclusions/Outlook

In addition to the content-related integration of the data, another challenge is the clarification of data protection aspects, which is also part of the project. In the future, other information, e.g. on climate, weather conditions or the movement of people and animals, could also be included.

VORTRÄGE

O-02 | AG SESSION 02 - KREBSEPIDEMIOLOGIE

O-02-01

FINANCIAL TOXICITY IN SARCOMA PATIENTS AND SURVIVORS IN GERMANY: RESULTS FROM THE MULTICENTER PROSA STUDY

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Introduction

Cancer patients have been shown to frequently suffer from financial burden before, during, and after treatment. Financial toxicity of patients with sarcoma, which is a rare and heterogeneous group of cancers, has been seldom assessed. Therefore, the aim of this study was to identify whether financial toxicity is a problem for German sarcoma patients and what factors may be associated with financial toxicity occurrence in sarcoma patients.

Methods

Patients for this analysis were obtained from a multicenter prospective cohort study conducted in Germany. Financial toxicity was assessed using the financial difficulties scale of the EORTC QLQ-C30. Financial toxicity was considered to be present if the score exceeded a pre-defined threshold. Comparisons to an age- and sex-matched norm-population were performed. A multivariate logistic regression using stepwise backward selection was used to identify variables associated with financial toxicity.

Results

From 37 clinics, 1103 sarcoma patients were included, with 498 of them (44.7%) reporting financial toxicity. All sarcoma patients, stratified by curative or palliative treatment intention, had 2.5 times the odds of reporting financial difficulties compared to an age- and sex-matched norm population. Belonging to a younger or older age group, higher education status, higher income, and disease progression were associated with lower odds of reporting financial toxicity. Receiving a disability pension, being currently on sick leave, and having a disabled person pass were statistically significantly associated with higher odds of reporting financial toxicity.

Conclusions/Outlook

Financial toxicity is present in about half of German sarcoma patients. Sarcoma patients on sick leave, disability pension and a disabled person pass are at high risk of reporting financial toxicity.

O-02-02

THE INCIDENCE OF INTESTINAL GASTRIC CANCER AMONG RESETTLERS IN GERMANY – DO RESETTLERS REMAIN AT AN ELEVATED RISK IN COMPARISON TO THE GENERAL POPULATION?

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Introduction

Previous studies have shown that the incidence of gastric cancer (GC), and particularly intestinal GC, is higher among ethnic German migrants (resettlers) from the former Soviet Union (FSU) than in the general German population. Our aim was to investigate if the higher risk remains over time.

Methods

GC cases between 1994 and 2013, in a cohort of 32,972 resettlers in Münster (North Rhine-Westphalia), were identified by the respective federal cancer registry. Age-standardized rates (ASRs) and standardized incidence ratios (SIRs) were analysed in comparison to the general population for GC subtypes according to the Laurén classification. Additionally, the cohort was pooled with data from a second resettler cohort from Saarland to investigate time trends using negative binomial regression.

Results

ASRs indicated a declining trend for total GC in the Münster population, but not for intestinal or diffuse GC. Theincidence of intestinal GC was elevated among resettlers in comparison to the general population [SIR (men) 1.64, 95% CI: 1.09–2.37; SIR (women) 1.91, 95% CI: 1.15–2.98]. The analysis with the pooled data confirmed an elevated SIR, which was stable over time.

Conclusions/Outlook

Resettlers' higher risk of developing intestinal GC does not attenuate towards the incidence in the general German population. Dietary and lifestyle patterns might amplify the risk of GC and we believe that further investigation of risk behaviors is needed to better understand the development of disease pattern among migrants.

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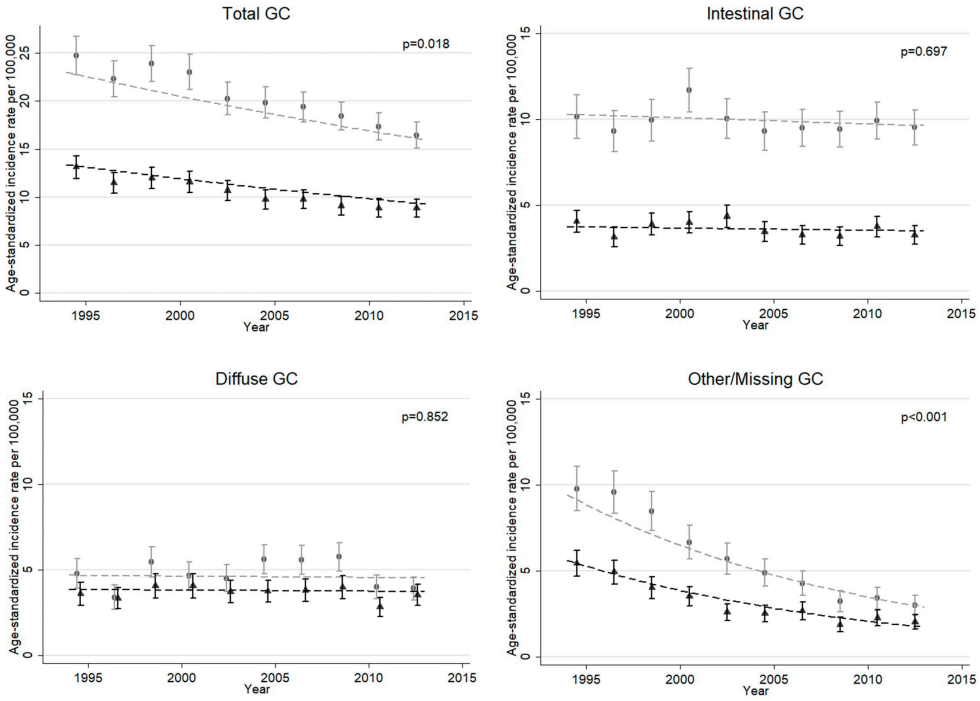
Table 1. Standardized incidence ratios (SIR) for subtypes of gastric cancer of resettlers compared to the general Münster population with 95% confidence intervals.

	Male		Female		Both sexes	
	Obs.	SIR (95% CI)	Obs.	SIR (95% CI)	Obs.	SIR (95% CI)
Total GC	51	1.50 (1.12–1.98)	36	1.32 (0.93–1.83)	87	1.42 (1.14–1.76)
Intestinal GC	28	1.64 (1.09–2.37)	19	1.91 (1.15–2.98)	47	1.73 (1.28–2.31)
Diffuse GC	14	1.61 (0.88–2.70)	6	0.64 (0.23–1.39)	20	1.11 (0.68–1.71)
Other/Missing GC	9	1.10 (0.50–2.09)	11	1.40 (0.70–2.50)	20	1.25 (0.76–1.92)

GC, gastric cancer; Obs., number of observations; SIR, standardized incidence ratio; CI, confidence interval.

Standardized incidence ratios for subtypes of gastric cancer among resettlers in Münster



Observed and modelled age-standardized incidence ratios of gastric cancer incidence in Münster
Age-standardized incidence rates (ASR) for each subtype of gastric cancer (GC) according to Laurén in the general Münster population. Plotted for two-year periods, from 1994–1995 to 2012–2013, with 95% confidence intervals. Males marked in grey, females in black. Dashed lines represent time trends modelled using negative binominal regression, with corresponding p-values of linear calendar year effect (rates are standardized with respect to the old European standard population).

O-02-03

PERCEPTION OF STRUCTURAL BARRIERS TO PHYSICAL ACTIVITY AMONG PEOPLE WITH CANCER

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Introduction

Many people with cancer experience barriers for performing physical activity (PA) after the diagnosis. However, the role of structural barriers has not been sufficiently investigated so far. Thus, the aim of the present study was to identify determinants of the perception of structural barriers and evaluate its impact on post-diagnosis PA.

Methods

A total of 1299 people with breast, prostate or colorectal cancer completed a survey assessing socio-demographic and medical characteristics, pre- and post-diagnosis PA and perceived PA impediment by seven structural barriers. Socio-demographic and medical determinants of the perception of structural barriers were identified using linear regression analyses. Logistic regression analyses were conducted to evaluate the association between each structural barrier and insufficient post-diagnosis PA, while taking different pre-diagnosis PA levels into account.

Results

PA impediment by a lack of disease-adjusted PA offers and support was reported by 40-60% of participants. Individuals who were younger, currently not working, had lower educational levels, a higher BMI, co-morbidities and reported lacking physicians' PA counseling indicated stronger PA impediments by structural barriers (all p's<.05). Perceiving impediment by structural barriers, especially a lack of educational material and disease-adjusted PA offers and support, was associated with a higher likelihood of being insufficiently active post-diagnosis. However, the association was only significant for individuals with sufficient pre-diagnosis PA levels (p<.05), not for previously insufficiently active people (p>.05).

Conclusions/Outlook

Structural barriers seem to substantially contribute to insufficient PA among people with cancer. Our results highlight important target points for the development and implementation of disease-adjusted supportive intervention strategies that might help to overcome structural barriers and improve PA after the diagnosis.

O-02-04

ARE CIRCULATING IMMUNE CELLS A DETERMINANT OF PANCREATIC CANCER RISK? A PROSPECTIVE STUDY USING EPIGENETIC CELL COUNT MEASURES.

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Introduction

Evidence is accumulating that immune cells play a prominent role in pancreatic cancer aetiology but prospective investigations are missing.

Methods

We conducted a nested case-control study within the European Prospective Investigation into Cancer and Nutrition (EPIC) study with 502 pairs of incident pancreatic cancer cases and matched controls. Relative counts of circulating immune cells (neutrophils and lymphocyte sub-lineages: total CD3+, CD8+, CD4+, and FOXP3+ regulatory T cells (Tregs) relative to nucleated cells) were measured by qRT-PCR. Odds ratios with 95% Confidence Intervals were estimated using logistic regressions.

Results

Neither relative counts of immune cell types taken individually, nor mutually adjusted for each other were associated with pancreatic cancer risks. However, in sub-group analyses by strata of lag-time, higher relative counts of Tregs and lower relative counts of CD8+ were significantly associated with an increased pancreatic cancer risks in participants diagnosed within the first 5 years of follow-up.

Conclusions/Outlook

These results might reflect reverse causation, due to higher relative counts of Tregs and lower counts of CD8+ cells among individuals with more advanced stages of latent pancreatic cancer, who are closer to the point of developing clinically manifest disease.Impact: We have shown, for the first time, that quantitative measurements of circulating immune cells in cohorts are feasible now and that increased Treg-mediated immune tolerance and reduced CD8+ mediated cytotoxicity may have an impact on pancreatic cancer risk on relatively late-stage tumor development.

O-02-05

RELATION BETWEEN BODY SIZE-METABOLIC PHENOTYPE AND SURVIVAL IN BREAST CANCER PATIENTS: RESULTS FROM THE MARIE PROSPECTIVE POPULATION-BASED PATIENT COHORT STUDY

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Introduction

Those overweight with hyperinsulinemia (metabolically unhealthy) may be at higher risk for chronic diseases including cancer compared to those overweight but non-hyperinsulinemic (metabolically healthy). Although obesity is an established risk factor for poorer survival after breast cancer (BC), few studies have evaluated metabolic health or a composite of metabolic health and body fatness in relation to survival. Given this knowledge gap, we investigated associations between a body size-metabolic phenotype (BSMP) and survival following BC.

Methods

We used data from 2060 women, diagnosed at 50-74 years with an incident BC, and enrolled in the MARIE study 2002-2005, and followed-up in 2009 (follow-up 1) and 2015 (follow-up 2). BMI was ascertained and c-peptide was measured in non-fasting blood collected at baseline. Patients were metabolically healthy if c-peptide was below the 1st tertile. Four BSMP categories were created: (1) metabolically healthy/normal weight (BMI 18.5-<25 kg/m²) (MHNW), (2) metabolically healthy/overweight (BMI >=25 kg/m²) (MHOW), (3) metabolically unhealthy/normal weight (MUNW), (4) metabolically unhealthy/overweight (MUOW). Cox proportional hazards regression was used to estimate associations between BSMP and all-cause and BC mortality until follow-up 1 as well as follow-up 2, adjusting for relevant prognostic factors.

Results

Preliminary results show that at follow-up 2 (11.6 years follow-up), there was no evidence of association between BSMP and all-cause mortality (HR (95%CI) 1.22 (0.83-1.80), 1.12 (0.78-1.61), 1.22 (0.88-1.70) for MHOW, MUNW, MUOW, respectively, compared to MHNW), and BC mortality (1.16 (0.72-1.86), 0.96 (0.61-1.52), 0.95 (0.62-1.44)). Follow-up 1 associations between BSMP and mortality were similar to those at follow-up 2.

Conclusions/Outlook

We will further explore these associations with recurrence as outcome, and whether associations differ by estrogen receptor status. Associations between c-peptide and outcomes will also be examined.

O-02-06

LONG-TERM CARDIAC MORBIDITY AND MORTALITY AFTER RADIOTHERAPY IN A COHORT OF GERMAN BREAST CANCER SURVIVORS: FIRST RESULTS OF THE ESKARA PROJECT

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Introduction

Breast cancer (BC) is the most commonly diagnosed cancer in females worldwide. Due to more effective treatments and earlier detection, the 5-year survival has improved substantially over the last decades. This improvement in survival led to concerns about long-term cardiac effects associated with radiotherapy (RT). Although improved RT techniques resulted in reduced cardiac doses, the heart can still be substantially exposed to ionizing radiation. On average, left-sided tumors lead to higher radiation doses to the heart due to its closer proximity to the treatment volume compared to right-sided tumors.

Methods

ESKaRa is the follow-up project of the PASSOS heart study, a retrospective multicenter cohort study, extending the mortality follow-up by 5.5 years up to 30.06.2018 and includes data on cardiac morbidity ascertained via an additional self-administered questionnaire. Study participants are female BC survivors diagnosed between 1998-2008. Here, we present the results on the association of tumor laterality (TL) as a surrogate measure for heart dose with the risk for cardiac mortality and morbidity using multivariate Cox regression.

Results

We included 11,982 BC survivors in our analyses of whom 9,047 patients received RT. The mean age of women with RT was 60.9 years, and the median follow-up was 11.5 years. Among women with RT, we observed 233 cardiac deaths and 497 incident cardiac events. There was no significant association between TL and the combined cardiac endpoint in irradiated patients (left-sided vs. right-sided tumors, HR 1.06, 95% CI 0.92-1.23), adjusting for age, chemotherapy and history of cardiac disease.

Conclusions/Outlook

TL was not associated with cardiac mortality and morbidity after RT, thus confirming previous studies with patients treated after 2000. However, TL might be a too imprecise indicator for the actual radiation exposure to the heart. Therefore, a dose-response analysis using reconstructed individual cardiac doses is planned within the ESKaRa project.
Funding: BMBF

O-02-07

MORTALITY OF LONG-TERM SURVIVORS AFTER CHILDHOOD CANCER IN GERMANY 1981-2018

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Introduction

The German Childhood Cancer Registry (GCCR) has been recording all childhood cancer cases in Germany since 1980, including long-term follow-up. Reports show that survival has improved considerably since the 1980ies. However, international reports show that mortality of long-term survivors in middle age is consistently higher than in the general population. We investigated to which extent this holds for Germany, too.

Methods

We analysed 61539 cases of childhood cancer, diagnosed with a first malignancy from 1981 to 2018 at age 14 or younger. We computed mortality rates, stratified by covariates of interest. We obtained absolute excess rates (AER) and standardized mortality ratios (SMR) to assess the long-term effect on mortality relative to the general population using data from the Human Mortality Database. To model joint effects of relevant covariates we applied Poisson regression.

Results

Mortality rates are highest in the first five years after diagnosis. Overall, the mortality rate is lowest among patients in their twenties, though still more than 7-fold the expected mortality rate. Mortality rates differ little between males and females. However, due to lower background mortality, the SMR is substantially higher in females. Even with increasing age and hence increasing background mortality there is substantial excess mortality. While mortality in the five years after diagnoses decreased considerably over the study period from 72/1000 person years (py) to 43/1000 py, there was little change in mortality rates beyond 10 years after diagnosis with SMR over 5.

Conclusions/Outlook

We conclude that childhood cancer survivors need life-long special care as risks remain elevated long after primary therapy.

O-02-08

DIFFERENTIAL GENE EXPRESSION AND AFFECTED PATHWAYS IN PRIMARY FIBROBLASTS OF FORMER CHILDHOOD CANCER PATIENTS WITH AND WITHOUT SECOND PRIMARY NEOPLASMS AND CANCER-FREE CONTROLS AFTER EXPOSURE TO IONIZING RADIATION: THE NESTED KIKME CASE-CONTROL STUDY

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Introduction

Second primary neoplasms occur in 8% of all cancer survivors within 30 years after the first diagnosis in Germany. An established risk factor is the exposure to ionizing radiation (IR) during radiation therapy. We aim to identify differences in gene expression and regulation of pathways in primary fibroblasts of childhood cancer survivors and cancer-free controls after exposure to IR.

Methods

Human skin fibroblasts of 52 donors with a first primary neoplasm in childhood (N1), 52 with at least one additional primary neoplasm (N2+), as well as 52 without cancer (N0) from the KiKme study were exposed to a high (2 Gray) and a low dose (0.05 Gray) of X-rays. Differentially expressed genes (DEGs) were computed using *limma* comparing irradiated with untreated cells and analyzed with *Ingenuity Pathway Analysis*. DEGs and pathway results were both selected at a false discovery rate level of 0.05.

Results

After 2 Gy, the number of DEGs was similar in fibroblasts across groups, showing activation of ***p53 Signaling*** and an impact on ***Molecular-Mechanisms of Cancer*** in fibroblasts of all groups. *P53* was predicted to be an upstream regulator in fibroblasts of all groups and *E2F1* in N1 and N2+. Downstream results were senescence in N0 and N2+, transformation of cells in N0 and no significant effects in N1. After 0.05 Gy, least DEGs were found in N0 (n=236), compared to N1 (n=653) and N2+ (n=694). Here, we observed activation of ***p53 Signaling*** in N0 and to a lesser extent in N1, but not in N2+. Only in N0, DNA repair was predicted as downstream function, while molecule networks in N2+ were associated with cancer, as well as injury and abnormalities.

Conclusions/Outlook

Our results show dose-dependent differences in the radiation response between N1/N2+ and N0. While mechanisms against genotoxic stress were activated to the same extent after a high dose in all groups, the radiation response was impaired after a low dose in N1/N2+, suggesting an increased risk for adverse effects including carcinogenesis, particularly in N2+.

O-02-09

COVID-19 PANDEMIC AND CANCER IN BAVARIA

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Introduction

The COVID-19 pandemic may have a substantial impact on screening, diagnosis and treatment of cancer. Measures, such as postponing hospital admissions for elective treatments and pausing screening, hinder a timely and adequate diagnosis and treatment. This study aims to describe possible effects of the first COVID-19 wave on cancer diagnoses and therapies in Bavaria.

Methods

Data is retrieved from the Bavarian Cancer Registry. We include diagnoses and therapies reported by pathologies and inpatient/outpatient care with no reporting and documentation delay for 2019 and 2020. We calculate the monthly number of cancer diagnoses and therapies during January and September of 2019 and 2020 as well as their change in 2020 compared to 2019 including 95% confidence intervals (CI).

Results

34 out of 57 pathologies as well as 9/18 certified Oncological Centres, further 20/24 certified Organ Cancer Centres, 36/210 clinics/departments, and 231/621 outpatient facilities are included in the analysis (pathologies: excluding Upper Franconia; inpatient/outpatient facilities: excluding Upper Bavaria and Upper Franconia). Diagnoses reported by pathologists show significant changes of -26% (95% CI -29% to -22%), -23% (95% CI -27% to -19%), and 6% (95% CI 1% to 12%) for April, May and June 2020 compared to 2019, respectively. For solid tumours reported by inpatient/outpatient care, we observe significant reductions in tumour diagnosis with cancer stage I of -24% (95% CI -38% to -8%) for April and -22% (95% CI -35% to -6%) for May 2020 compared 2019. For all therapies combined, reductions are -5% (95% CI -11% to 1%) for April and -23% (95% CI -27% to -18%) for May 2020 compared to 2019.

Conclusions/Outlook

During the first wave of the COVID-19 pandemic cancer diagnoses and therapies are substantially reduced. Further research is needed regarding a possible catching-up process and potential long-term effects of diagnosis and therapy delays on cancer survival.

O-02-10

USE OF CLINICAL CANCER REGISTRATION DATA ACCORDING TO § 65C SGB V TO DESCRIBE LUNG CANCER CARE PATTERNS IN GERMANY - AN INTERIM REPORT.

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Introduction

From 2014, clinical cancer registries were introduced on a nationwide basis in accordance with the requirements of § 65c of the German Social Code Book V (SGB V). The cancer registry data are intended to contribute to the optimization of care. Currently, there is no overall "clinical" data set for Germany. Although the data are largely uniform, they are currently only accessible for research at the level of federal states. Since the completeness and comprehensiveness of the treatment-related data are still largely unclear, the question arises as to whether and to what extent the data can be used within academic projects to describe the oncological care of persons with lung cancer.

Methods

Best-of information (BOF; if available) or case-attributable reports from four clinical cancer registries were requested. The requested data include information on diagnosis, therapy and progression of lung cancer (ICD-10 C34; diagnosis years 2016-2019).

In the first step of the project, the data sets of the registries will be processed (including best-of-formation on therapy information) and merged. In the second step, the completeness of the data, plausibility of the data, and completeness of the treatment histories are reviewed. Analysis of scientific research questions form the third phase of the project.

Results

The call for data was done in December 2020 and January 2021, respectively (Table 1). Currently, data from three clinical cancer registries have been processed, resulting in a total of 30,479 lung cancer cases for the period 2016 - 2019.

Conclusions/Outlook

In the interim report, the methods of data preparation are presented and first experiences with the handling of the data are reported. It will also provide an initial assessment of whether the data can be used to map the oncological care of people with lung cancer and, if so, with what limitations. Furthermore, the stumbling blocks and pitfalls discovered so far will be presented.

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Tab. 1: Databasis (April 2021)

	CR1	CR 2	CR 3	CR 4
Final „Call for data“ send after preliminary talk	16.12.2020	23.12.2020	07.01.2021	21.01.2021
Data retention	21.04.2021	25.03.2021	08.03.2021	pending
Number of cases 2016-2019	7,578	18,718	4,183	
Type of Data				
Diagnosis	Best-of-Information	Best-of-Information	Best-of-Information	
SG	Case-Assignable Notifications	Best-of-Information	Case-Assignable Notifications	
RT	Case-Assignable Notifications	Case-Assignable Notifications	Case-Assignable Notifications	
SY	Case-Assignable Notifications	Case-Assignable Notifications	Case-Assignable Notifications	
Follow up	Case-Assignable Notifications	Case-Assignable Notifications	Case-Assignable Notifications	
Information on treatment available				
No information	29.0 %	24.2 %	28.7 %	
Only SG	10.1 %	14.1 %	12.4 %	
Only RT	11.7 %	9.5 %	14.6 %	
Only SY	21.7 %	19.5 %	21.0 %	
SG & ST	1.5 %	2.0 %	2.1 %	
SG & SY	3.8 %	6.1 %	5.3 %	
SG, RT, & SY	3.9 %	6.4 %	3.8 %	
RT & SY	18.3 %	18.2 %	12.1 %	

CR = Cancer Registry, SG = Therapy report on Surgery, RT = Therapy report on Radiation Therapy, SY = Therapy report on Systemic Therapy

Table 1: Databasis (April 2021)

O-02-11

ARE THERE EFFECTIVE STRATEGIES FOR EARLY DETECTION AND PREVENTION OF OVARIAN CANCER IN AUSTRIA?-A DECISION-ANALYTIC EVALUATION -

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Introduction

Ovarian cancer is the seventh most common cancer in women in developed countries. Most women are initially diagnosed at advanced ovarian cancer stages associated with low survival. Screening and early detection of ovarian cancer can potentially improve survival, but may also be associated with potential harms. We evaluate benefits and harms of different ovarian cancer screening strategies in Austrian postmenopausal women.

Methods

A decision-analytic Markov state-transition model simulating the natural history of ovarian cancer development was developed to evaluate different strategies including annual multimodal screening (MMS) based on the Risk of Ovarian Cancer Algorithm (ROCA), annual ultrasound screening (USS), and no screening (NoScreen) in a cohort of asymptomatic postmenopausal women during their lifetime. Austrian epidemiological cancer data, effectiveness data based on UKCTOGS trial results, and international utility data were used. Outcomes included: cancer mortality reduction, numbers of cancer death prevented, life years gained (LYG), quality-adjusted life-years gained (QALY), false-positive test results, and unnecessary oophorectomies.

Results

MMS is the most effective strategy in terms of relative cancer mortality reduction (33%) and yielded 0.060 LYG or 0.047 QALYs compared to NoScreen. MMS lead to a 76% relative risk reduction in developing advanced ovarian cancer and a relative increase of 45% cancers diagnosed in the first stage compared to NoScreen. USS is 4.5% less effective in terms of LYG and resulted in more false-positive cases, when compared to MMS.

Conclusions/Outlook

Based on our decision analysis, MMS based on ROCA, is effective in reducing mortality compared to no screening in postmenopausal asymptomatic Austrian women. Further research is needed to evaluate different strategy combinations. Predictive biomarkers should be assessed as an aid to decision making in management of screen-positives cases.

VORTRÄGE

O-03 | AG SESSION 03 - HEALTH GEOGRAPHY

O-03-01

ACCESS TO LOCATION-BASED INFORMATION IS CRITICAL FOR MONITORING THE GEOGRAPHICAL DISTRIBUTION AND SPREAD OF INFECTIOUS DISEASES - AN ASSESSMENT OF COVID-19 NATIONAL DASHBOARDS AND THEIR VALUE FOR A CROSS-BORDER EUROPEAN UNION RESPONSE

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Introduction

Infectious diseases spread from person to person and thus in space and time. Depending on the characteristics of the disease, different spatial distribution patterns can be observed over time (Outbreak_Germany.png). In times of a pandemic such as COVID-19 a supranational view is needed to take appropriate and coordinated action at all governance levels; supranational, national, regional, and local. Supranational dashboards such as the WHO European Region COVID19 Subnational Explorer provide a visual display of COVID19 related data. However, *'all counts are subject to variations in case detection, definitions, laboratory testing, and reporting strategies'* (WHO disclaimer, 2021).

Methods

This work provides a multicriteria assessment of what COVID-19 data is disseminated and how it is visualized in the national dashboards of most European Union Member States. The evaluation is based on a set of selected criteria to compare the dashboards of each Member State in a standardized way (Rating.png).

Results

The result of the evaluation shows a considerable variety among the various dashboards. Number of COVID-19 cases, hospitalized and recovered people, and deaths is the norm; additional information such as reproduction number, tests performed, ratio of positive tests, the virus level in sewage water, comorbidity, or the number of vaccinations is sometimes reported. Some dashboards present parameters in time intervals, such as data for the previous day, 7-day interval and 14-day interval. Data were found at different geographical scales, such as regions, districts, municipalities.

Conclusions/Outlook

In conclusion, an integrated system providing basic geospatial data, statistical data, and public health data in one and the same framework would make it possible to retrieve infectious disease related information at all levels—global, supranational, national and local—in a timely and user-oriented manner. Joint efforts would be needed to tackle the existing organizational, technical, and legal challenges.

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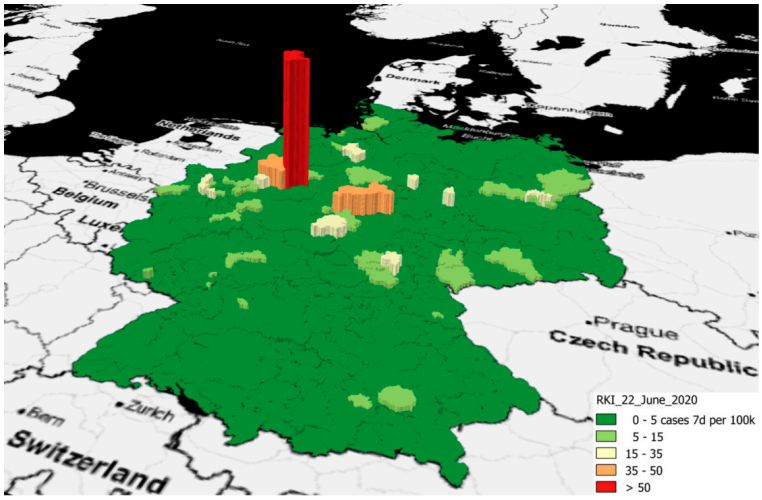
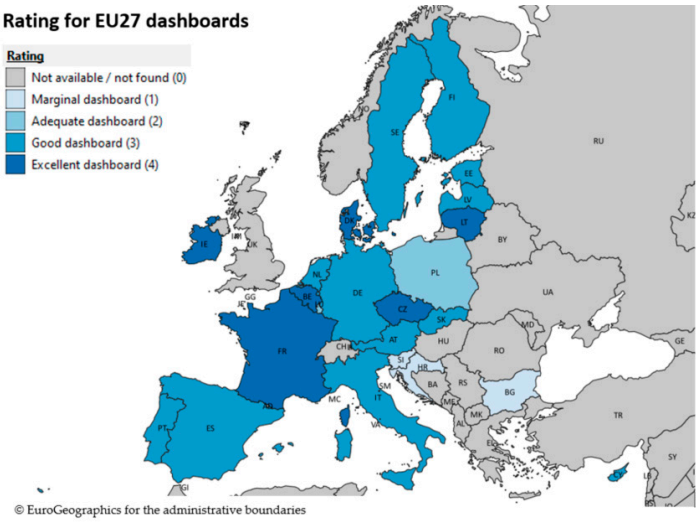


Visualization of a major local COVID-19 outbreak in Germany at county level, June 2020

Visualization of a major local outbreak in Germany at county level



Rating matrix for evaluation of dashboards

Rating	Description	Total weighted score
0	Not available / not found	NA
1	Marginal dashboard	8 - 14
2	Adequate dashboard	15 - 20
3	Good dashboard	21 - 26
4	Excellent dashboard	27 - 32

Rating for EU27 dashboards

O-03-02

RAUMZEITLICHE ASSOZIATIONEN ZWISCHEN HAUTKREBSSCREENING UND -MORTALITÄT IN DEUTSCHLAND

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Introduction

Hautkrebs (HK) zählt zu den häufigsten Krebserkrankungen in Deutschland. Seit 2008 wird gesetzlich Versicherten ab 35 Jahren alle zwei Jahre das gesetzliche Hautkrebsscreening (HKS) kostenlos angeboten. Dieses Arbeitspaket im Rahmen des vom Innovationsfonds geförderten Projekts „Perspektiven einer multimodalen Evaluation der Hautkrebsfrüherkennung“ (Pertimo) untersucht den Einfluss des HKS auf die Hautkrebsmortalität unter Berücksichtigung raum-zeitlicher Variationen und stellt einen ersten Ansatz dar, um den Nutzen des HKS unter Berücksichtigung der räumlichen Ebene bewerten zu können.

Methods

Es wurden HKS-bezogene Abrechnungsdaten der Kassenärztlichen Bundesvereinigung, sowie Todesursachenstatistiken des Melanoms und nicht-melanotischen HK der statistischen Landesämter auf Ebene der Kreise und kreisfreien Städte der Jahre 2011 bis 2015 verwendet.
Um den Einfluss des HKS auf die Mortalität zu untersuchen wurde ein generalisiertes lineares gemischtes Modell mit raum-zeitlich autokorrelierten zufälligen Effekten eingesetzt. 95%-Vertrauensintervalle (VI) wurden dabei über MCMC-Simulationen ermittelt. Die Analysen wurden zunächst nach dem Durchschnittsalter der Regionen, anschließend zusätzlich nach ausgewählten sozioökonomischen Faktoren adjustiert.

Results

Betrachtet man den Effekt des HKS auf die Mortalität (adj. nach Durchschnittsalter), so sinkt das Risiko an Hautkrebs zu sterben um -2,5% (95%-VI: [-4%;-0,9%]), wenn die Teilnehmerrate des HKS um 1.000 pro 100.000 GK-Versicherte steigt. Nach Adjustierung der sozioökonomischen Faktoren ist kein signifikanter Effekt des HKS erkennbar.

Conclusions/Outlook

Die hier verwendeten Verfahren bieten einen ersten methodischen Ansatz, um die regionalen Daten von HKS und Mortalität über einen Zeitraum mehrerer Jahre zu analysieren, allerdings sind die Ergebnisse mit Unsicherheiten behaftet. Um daraus eine Handlungsempfehlung über den Nutzen des HKS ableiten zu können, sind differenzierte Datensätze und weitere Analysen nötig.

O-03-03

REGIONAL DISPARITIES IN DEMENTIA INCIDENCE IN GERMANY IN 2015-2017. A MULTI-LEVEL SURVIVAL ANALYSIS BASED ON ADMINISTRATIVE HEALTH CLAIMS DATA

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Introduction

Dementia is one of the most severe types of cognitive impairments and thus a very high burden for persons at older ages, their partners, families, and the society in total. This study aimed to reveal disparities in the incidence of dementia at older ages between the regions of Germany by using latest longitudinal individual level routine data and official and reliable macro level data.

Methods

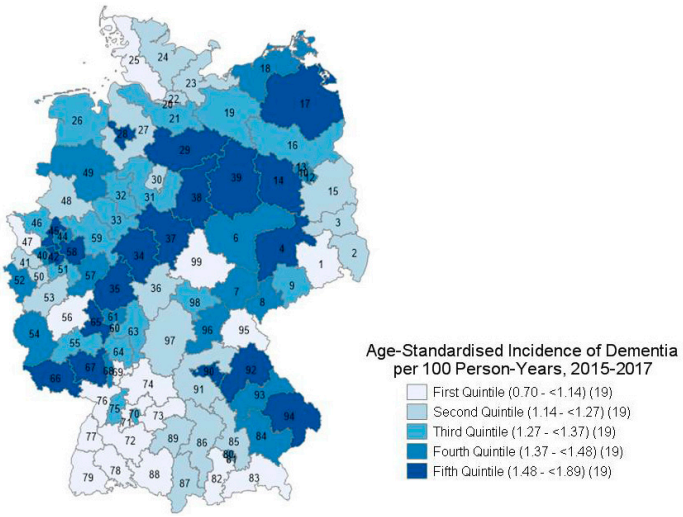
Based on a random sample of 250.000 members of the largest German public health insurance, the Allgemeine Ortskrankenkasse (AOK), at age 50+ in 2014 we analyzed quarterly data about diagnoses, biographic information, and place of residence over the period 2015 to 2017. By using five-digit post zip codes, we added external data about various dimensions of regional characteristics offered by the INKAR database. We used multilevel survival regressions to bring out regional incidence disparities while adjusted for spatial correlation, removals within a quarter, multi-morbidity, and regional proportions of AOK.

Results

The analysis detected the highest incidence of dementia in the Ruhr area, regions in East Bavaria, Hesse, the Saarland, Mecklenburg-Western Pomerania, Lower Saxony and Rhineland-Palatinate, while there was the lowest incidence in the regions in South Bavaria and Baden-Wurttemberg. Even after adjusting for multi-morbidity and migration selection bias, persons in wealthier regions, in regions with a higher old-age life expectancy and more untouched nature had an 8% to 12% lower dementia risk.

Conclusions/Outlook

The used data source allowed investigating the role of living context on the incidence of dementia, while adjusting for the composition of the population and changes of the context of the individuals due to removals. We revealed a lower incidence of dementia in wealthy, healthy and untouched regions, which may be a result of unequal effects of mortality and mobility (selection) as well as a consequence of different health-related life styles and living conditions.



Map 1
Mapping of age-standardised incidence of dementia per 100 person-years two-digit post code regions in 2015-2017. AOK data

O-03-04

EPIDEMIOLOGICAL, POPULATION-BASED ANALYSIS OF OUTPATIENT GERIATRIC HEALTH CARE IN MECKLENBURG-WESTERN POMERANIA - A SPATIAL SECONDARY DATA ANALYSIS

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Introduction

Elderly patients are at higher risk for developing chronic conditions and becoming dependent on care. Early geriatric assessments and subsequent holistic treatment can help to timely identify geriatric need and may maintain the independence of elderly patients. The aim of this study was to examine regional differences in the utilization of general (GOGC) and specialized outpatient geriatric care (SOGC) in Mecklenburg-Western Pomerania.

Methods

Statistical and geographical analyses as well as cartographic representations were used toinvestigatethe spatial distribution of used outpatient geriatric services on the level of post-code-areas. Basis of the analysis were reimbursement data of the Association of Statutory Health Insurance Physicians of 2017. We included all geriatric patients who were entitled either to GOGC or to SOGC, based on age and morbidity. A Moran's I analysis was carried out in order to identify statistically significant clusters of low or high utilization rates of geriatric services.

Results

Of 221,654 patients (75.3% of all inhabitants of MW ≥70) who were eligible for GOGC in 2017, 58.3% (n=129,283) received at least one basic geriatric service. Of 95,171 patients who were entitled to SOGC, 77.2% (n=73,442) received at least GOGC or SOGC once. Only 0.4% (n=414) of the group entitled to SOGC received specialized geriatric services. The proportion of patients who received a basic geriatric assessment ranged in the post-code-areas from 3.4 to 86.7% (with 50% of the values between 37.4 and 62.2%) and a median of 51.6%. Moran's I showed different regions with clusters of significant high and low utilization rates of basic geriatric assessment.

Conclusions/Outlook

The regionally differentiated wide range of the utilization rates with sometimes considerable contrasting high and low utilization in direct neighborhood indicates other than structurally based causes. Active geriatric networks were existing in or near regions with a significantly high utilization rate.

O-03-05

VERFÜGBARKEIT VON OPEN DATA IM KONTEXT VON RAUM UND GESUNDHEIT

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Introduction

Präventive und gesundheitsförderliche politische Maßnahmen können (raumspezifisch) Einflussfaktoren auf die menschliche Gesundheit steuern. Mit der Einführung neuer Technologien und damit der vielfältigen Möglichkeiten zur Nutzung und Weiterverarbeitung von Daten haben sich neue Möglichkeiten ergeben, Faktoren, die sich auf die Gesundheit auswirken, zu messen und monitorieren. So sind in den letzten Jahren Portale für offene Daten (inklusive Verwaltungs- und Geodaten) entstanden. Immer mehr Forschungseinrichtungen sowie (staatliche und private) Unternehmen und Bürgerinitiativen stellen zudem Daten zur Verfügung.

Methods

Bislang fehlt es allerdings an Übersichten, die die aktuelle Bandbreite dieser Angebote im Hinblick auf den Gesundheitskontext erfassen. Insbesondere für räumliche differenzierte Betrachtungen ergeben sich Herausforderungen bezüglich der Datenverfügbarkeit auf den verschiedenen räumlichen Ebenen und der wachsenden Palette der Anbieter. Dieser Beitrag soll, basierend auf Web- und Datenbankrecherchen, einen Überblick geben, wo bislang offene Daten im Kontext von Raum und Gesundheit angeboten werden und unter welchen technischen und rechtlichen Bedingungen diese verwendet werden können.

Results

Eine aktuelle Ergebnisübersicht zeigt die stark heterogene Verfügbarkeit relevanter, offener Daten und verschiedene Nutzungsbedingungen auf. Ergänzend steht eine Webvisualisierung allen Interessierten unter einer offenen Lizenz zur Weiternutzung zur Verfügung.

Conclusions/Outlook

Aufgrund der dynamischen Entwicklung ist es sinnvoll, derartige Übersichten kontinuierlich zu erweitern. Erstrebenswert wären Lösungen, die IT-basiert relevante, bestenfalls standardisierte Datenkataloge aus dezentralen Ressourcen importieren. Metadaten (inklusive technischer und rechtlicher Bedingungen) sind hierfür eine wesentliche Grundlage. In der Public-Health Forschung sollten die wachsenden Möglichkeiten von Open Data zudem wahrgenommen, aktiv nachgefragt und genutzt werden.

VORTRÄGE

O-04 | AG SESSION 04 - EPIDEMIOLOGIE DER HERZ-KREISLAUF- UND STOFFWECHSEL-ERKRANKUNGEN

O-04-01

ASSOCIATION OF BP AND BMI DURING CHILDHOOD WITH BIOMARKERS FOR ARTERIAL STIFFNESS IN ADOLESCENTS AND YOUNG ADULTS

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Introduction

Sonography of the common carotid artery (CCA) allows the assessment of the function of the vascular system by measuring various parameters of arterial stiffness. So far, data on early functional alterations in unselected adolescents and young adults are scarce. Since arterial stiffness increases not only in the presence of risk factors but physiologically with both age and growth, reference centiles are needed to investigate associations with established risk factors.

Methods

The KiGGS cohort included high resolution sonography of the CCA in its 11-year follow-up. For 4,305 participants aged 14 to 28, functional arterial wall properties were assessed by computing the distensibility coefficient (DC), stiffness index -, Young's elastic modulus (YEM) and Peterson's elastic modulus (Ep). Centiles were estimated by age (and height) separately for males and females, using the generalized additive model for location, scale and shape. Relative risks (RR) were obtained from log-binomial regression. Overweight was defined as BMI>= P90 according to Kromeyer-Hauschild centiles and BMI >=25 kg/m2 from age 18. Hypertensive blood pressure was defined according to German guidelines (>= P95 systolic or diastolic according to KiGGS centiles and >=140/90 mmHg from age 18).

Results

Hypertensive blood pressure and obesity were associated with a higher risk of elevated arterial stiffness (>90th centile) at follow-up. For both- hypertensive BP and obesity, effect sizes are comparable and of similar magnitude ($1.08 \leq RR \geq 1.77$). When investigating obesity and high blood pressure together, the effect size increased, leading to relative risks of up to 2.78 (CI 1.63-4.72).

Conclusions/Outlook

Examining a large general population sample with recent technology, this study confirms that hypertension and obesity in childhood are linked to subclinical atherosclerosis in adolescence and young adulthood. This emphasizes the importance of interventions on a population level to reduce the early development of cardiovascular risk factors.

O-04-02

CARDIOVASCULAR RISK FACTORS AND GENETIC VARIATION: A COHORT STUDY ON MIGRANTS FROM THE FORMER SOVIET UNION AND A NATIVE GERMAN POPULATION

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Introduction

Resettlers are a large migrant group of more than 2 million people in Germany who migrated mainly from the former Soviet Union to Germany after 1989. Earlier studies have shown a significantly lower cardiovascular mortality in this migrant group compared to the general German population. Some smaller studies however indicated a higher prevalence for major risk factors. We compared the distribution of major risk factors for cardiovascular disease and investigated overall genetic differences in a larger population which consists of resettlers and native Germans.

Methods

Two cohort studies which were performed in the region of Augsburg, Bavaria, Germany with 3363 native Germans and 363 resettlers. Data from questionnaires and physical examinations were used to compare risk factors for cardiovascular diseases between resettlers and native Germans. A genome-wide association analysis was performed to identify genetic differences between the two groups.

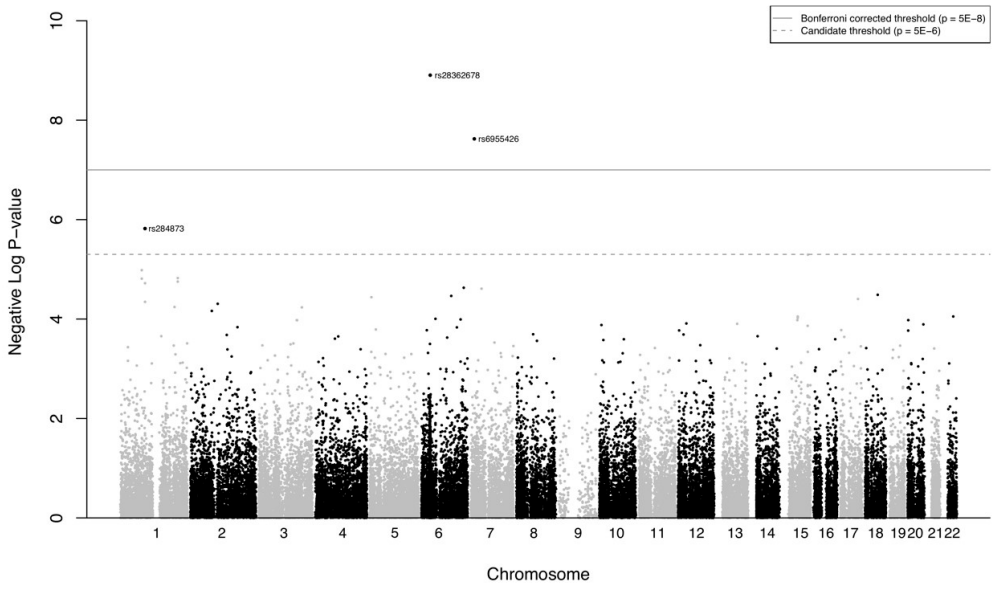
Results

The distribution of major risk factors for CVD differed. In a multivariable loigistic model adjusted for age, physical activity was significantly lower in resettlers (OR 4.5, 95% CI 2.8-7.4 and OR 2.6, 95% CI 1.6-4.1 for women and men, resp.) and the BMI was higher (OR 1.08, 95% CI 1.05-1.12 and OR 1.02, 95% CI 0.98-1.08). While female resettlers smoked less than their German counterparts, men had similar smoking behavior (OR for current smoker vs. never smoker 0.37, 95% CI 0.21-0.65 and OR 1.19, 95% CI 0.69-2.05). A principle component analysis on all SNPs also did not indicate a separation between resettlers and autochthone Germans. SNPs from three genes (BTNL2, DGKB, TGFBR3) indicated a difference in the two populations.

Conclusions/Outlook

The observed risk factor distribution in resettlers do not explain the observed lower cardiovascular disease mortality. Major genetic differences have not been found. The observed genes with differences between both groups have been shown to be associated with CVD, rheumatoid arthritis, and osteoporosis.

Grafik auf folgender Seite



Manhattan plot for genome wide analysis of resettler status.

O-04-03

CHRONIC KIDNEY DISEASE AND RISK OF ATRIAL FIBRILLATION AND HEART FAILURE IN GENERAL POPULATION-BASED COHORTS. THE BIOMARCARE PROJECT.

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Introduction

Chronic kidney disease (CKD) has a complicated relationship with the heart, leading to many adverse outcomes. The aim of this study was to evaluate the relationship between chronic kidney disease (CKD) and the incidence of atrial fibrillation (AF) and heart failure (HF) along with mortality as a competing risk in general population cohorts.

Methods

This study was conducted as part of the BiomarCaRE project using harmonized data from 12 population-based cohorts from Europe (n=48,518 participants). CKD was assessed by estimated glomerular filtration rate (eGFR) using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) combined equation with standardized serum creatinine (Cr) and serum cystatin C (CysC). Cox proportional hazards models were used to determine hazard ratios (HRs) for the incidence of AF and HF in CKD and the competing risk of mortality after adjustment for covariates.

Results

The mean age at baseline was 51.4 (standard deviation 12.1) years and 49% were men. Overall, 4.3% had CKD at baseline. The rate for AF was 3.8 per 1000 person-years during follow-up. The HR for AF in patients with CKD compared with patients without CKD was 1.28 (95% CI 1.07-1.54) after adjustment for covariates. The rate for incident HF was 4.1 per 1000 person-years and the associated risk in the presence of CKD was HR 1.71 (95% CI 1.45-2.01). In subjects with CKD, N-terminal natriuretic pro-B peptide (NT-proBNP) showed an association with AF, whereas NT-proBNP and C-reactive protein (CRP) showed an association with HF.

Conclusions/Outlook

CKD is an independent risk factor for subsequent AF and even more so for HF. In patients with CKD, NT-proBNP was associated with a subsequent risk of AF. In addition to this marker, hs-CRP was also associated with risk for subsequent HF.

O-04-04

ASSOCIATION OF LONG-TERM TRAJECTORIES OF DEPRESSION WITH INCIDENT DIABETES MELLITUS IN PATIENTS WITH STABLE CORONARY HEART DISEASE

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Introduction

We recently identified long-term trajectories of depression symptom severity in individuals with coronary heart disease (CHD), which were associated with the risk for subsequent cardiovascular events (CVE). We now investigated the association of these trajectories of symptoms of depression with the risk of incident DM in patients with stable coronary heart disease.

Methods

The KAROLA cohort included CHD patients participating in an in-patient rehabilitation program (years 1999/2000) and followed for up to 15 years. We included 1048 patients (mean age 59.4 years, 15% female) with information on prevalent DM at baseline and follow-up data. Cox proportional hazards models were used to model the risk for incident DM during follow-up by depression trajectory class adjusted for age, sex, education, smoking status, body mass index, and physical activity. In addition, we modeled the excess risk for subsequent CVE due to incident DM during follow-up for each of the depression trajectories.

Results

DM was prevalent in 20.7% of patients at baseline. Over follow-up, 296 (28.2%) of patients had a subsequent CVE. During follow-up, 157 (15.0%) patients developed incident DM before experiencing a subsequent CVE.

Patients following a high-stable depression symptom trajectory were at substantially higher risk of developing incident DM than patients following a low-stable depression symptom trajectory (hazard ratio (HR)= 2.50; 95% confidence interval (CI)= (1.35, 4.65)). A moderate-stable and an increasing depression trajectory were associated with HRs of 1.48 (95%-CI= (1.10, 1.98)) and 1.77 (95%-CI= (1.00, 3.15)) for incident DM.

Conclusions/Outlook

In patients with CHD, following a trajectory of high stable symptoms of depression was associated with an increased risk of incident DM. Identifying depressive symptoms and pertinent treatment offers might be an important and promising approach to enhance outcomes in patients with CHD, which should be followed up in further research and practice.

O-04-05

STAAB-COVID-ONE: VERÄNDERUNG VON KARDIOVASKULÄREN RISIKOFAKTOREN SEIT COVID-19 UND ERGEBNISSE DER ERSTEN SEROPRÄVALENZERHEBUNG IN DER WÜRZBURGER STAAB-KOHORTENSTUDIE

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Introduction

Die STAAB Kohortenstudie („*Häufigkeit und Einflussfaktoren auf frühe STAdien A und B der Herzinsuffizienz in der Bevölkerung*“) untersucht seit 2013 Häufigkeit und natürlichen Verlauf der Vorläuferstadien von Herzinsuffizienz in einer Stichprobe von 5.000 Einwohnern aus Würzburg (Alter bei Baseline 30-79 Jahre). Im Zuge der Corona-Pandemie wurde im Juni 2020 die STAAB-COVID-Substudie zur Erfassung der SARS-CoV-2 Seroprävalenz und Veränderung von Lebensstilfaktoren implementiert.

Methods

Von Juni-Oktober 2020 wurden alle Teilnehmer der STAAB-Studie zu einer Blutabnahme und Fragebogenerhebung eingeladen. Der Fragebogen erfasste Vorerkrankungen, Informationen zur bisherigen Testung auf bzw. Infektion mit SARS-CoV-2, Lebensqualität (EQ-5D), Angst (GAD7), depressive Verstimmung (PHQ-9), psychosoziale Belastung durch die Beschränkungen, Veränderung von Ernährung und körperlicher Aktivität sowie Inanspruchnahme allgemeiner medizinischer Versorgung.

Results

Von 4860 eingeladenen Teilnehmer nahmen 3034 an STAAB-COVID teil (62%). Bei 33 Teilnehmern konnten Antikörper gegen SARS-CoV2 nachgewiesen werden (1,1%, 95%KI 0,7-1,5%, Tabelle 1). 6% der Teilnehmer gaben an, sich seit der Pandemie subjektiv weniger gesund zu ernähren, während 12% sich gesünder ernährten. Zudem berichteten 25% von einer Abnahme, 13% von einer Erhöhung der körperlichen Aktivität. Bei 25% der Teilnehmer hatte sich seit Beginn der Pandemie mindestens ein Termin beim Haus- oder Facharzt und bei 4% eine Krankenhausbehandlung verschoben oder wurde abgesagt.

Conclusions/Outlook

Die erste Erhebung des STAAB-COVID Programms zeigte, dass im Würzburger Raum vor Beginn der zweiten Welle erst ein kleiner Bevölkerungsanteil mit SARS-CoV-2 infiziert war. Die Pandemie wirkte sich messbar auf Ernährung und körperliche Aktivität sowie Inanspruchnahme bzw. Bereitstellung medizinischer Leistungen aus. Die Durchführung der Studie wurde durch die bereits bestehende Kohortenstudie entscheidend erleichtert. Weitere Erhebungen im Rahmen von STAAB-COVID sind geplant.

Grafik auf folgender Seite

Tabelle 1. Basisdaten der Studienteilnehmer insgesamt und bei Personen ohne und mit positivem SARS-CoV-2-Antikörpertest.

Merkmal	Teilnehmer gesamt	Seropositiv, n (%)	p-Wert
Alle Teilnehmer	3001	33 (1,1)	–
Demographie / allgemein			
Geschlecht			0,16
Männlich	1424	20 (1,4)	
Weiblich	1557	13 (0,8)	
Alter (Basisuntersuchung)			0,04
30-39 Jahre	256	5 (2,0)	
40-49 Jahre	733	11 (1,5)	
50-59 Jahre	859	10 (1,2)	
60-69 Jahre	860	4 (0,5)	
70-79 Jahre	293	3 (1,0)	
Arbeitsplatz			0,002
In medizinischer Einrichtung	299	10 (3,2)	
Andere oder kein Arbeitsplatz	2545	23 (0,9)	
Aktuelle Wohnsituation			>0,99
Privat, allein	592	7 (1,2)	
Mit anderen Personen	2246	26 (1,1)	
Raucher			0,64
Nie	1416	16 (1,1)	
Früher	1224	15 (1,2)	
Aktuell	360	2 (0,6)	
Kardiovaskuläre Risikofaktoren			
Hypertonus			0,16
Ja	1372	11 (0,8)	
Nein	1629	22 (1,4)	
Diabetes mellitus			>0,99
Ja	256	3 (1,2)	
Nein	2745	30 (1,1)	
Adipositas			0,65
Ja	545	7 (1,3)	
Nein	2456	26 (1,1)	
Metabolisches Syndrom*			0,65
Ja	534	7 (1,3)	
Nein	2467	26 (1,1)	
COVID-19-assoziierte Risikofaktoren			
Kontakt mit Infizierten			<0,001
Kein bekannter Kontakt	2815	22 (0,8)	
Ja, ≥1,5 Meter Abstand	84	2 (2,4)	
Ja, <1,5 Meter Abstand	102	9 (8,8)	
Vorbefund aus Abstrich			<0,001
Keiner / unbekannt	2546	15 (0,6)	
Befund negativ	436	2 (0,5)	
Befund positiv	19	16 (84,2)	

Tabelle 1. Basisdaten der Studienteilnehmer des STAAB-COVID Programms
* Falls ≥3 der folgenden Kriterien erfüllt sind: Taillenumfang ≥102 cm (m) / ≥88cm (f), Triglyceride ≥1,7 mmol/L oder Medikamente gegen hohe Triglyceride, hochdichtes Lipoprotein <40 mg/dL (m) / <50 mg/dl (f) oder Lipidmodifikat. Arzneimittel, Blutdruck ≥130/85 mmHg, Nüchternblutzucker ≥6,1 mmol/L; Datenquellen: Demographie und kardiovaskuläre Risikofaktoren aus Basisuntersuchung; Raucherstatus aus dem Covid-19-Fragebogen oder, falls nicht vorhanden, aus der Basisuntersuchung; alle anderen Variablen aus dem Covid-19-Fragebogen

O-04-06

RISK PHENOTYPES OF DIABETES FOR COVID-19 SEVERITY AND DEATH – A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction

Individuals with diabetes have an approximately twofold increased risk of death related to COVID-19 compared to individuals without diabetes. The aim of this systematic review and meta-analysis is to identify high-risk phenotypes of diabetes associated with COVID-19 severity and death.

Methods

This is a systematic review and meta-analysis on observational studies investigating phenotypes in individuals with diabetes and COVID-19-related death and severity. We searched four databases up to October 10th 2020. Random effects meta-analysis were used to calculate summary relative risks (SRR) with 95% confidence intervals (CI). The certainty of evidence was evaluated by using the GRADE tool

Results

Twenty-two articles, including 17,687 individuals with diabetes and confirmed SARS-CoV-2 infection met our inclusion criteria. There was high to moderate certainty of evidence for associations between male sex [SRR (95% CI): 1.28 (1.02, 1.61), n=10 studies], age >65 years [3.49 (1.82, 6.69), n=6], pre-existing comorbidities, including cardiovascular disease: 1.56 (1.09, 2.24), n=8; chronic kidney disease: 1.93 (1.28, 2.91), n=6; chronic obstructive pulmonary disease: 1.40 (1.21, 1.62), n=5], diabetes treatment, including insulin use [1.75 (1.01, 3.03), n=5] and metformin use [0.50 (0.28, 0.90), n=4] and blood glucose at admission [blood glucose ≥11 mmol/l: 8.60 (2.25, 32.83), n=2] regarding COVID-19-related death among individuals with diabetes and COVID-19. For COVID-19 severity, the associations were similar, but in general weaker and less precise.

Conclusions/Outlook

Individuals with more severe course of diabetes have a poorer prognosis of COVID-19 compared to individuals with a milder course of diabetes. To strengthen the evidence still more studies accounting for potential confounders are warranted.

VORTRÄGE

O-05 | AG SESSION 05 - EPIDEMIOLOGIE DER ARBEITSWELT (SESSION I)

O-05-01

CARDIOVASCULAR HEALTH OUTCOMES OF MOBBING AT WORK: RESULTS OF THE POPULATION-BASED, FIVE-YEAR FOLLOW-UP OF THE GUTENBERG HEALTH STUDY

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Introduction

The aim of this study was to determine if there is an increased risk of incident cardiovascular disease (CVD) resulting from workplace mobbing measured with two mobbing instruments in the Gutenberg Health Study.

Methods

In this prospective study, we examined working persons younger than 65 years for the presence of mobbing at baseline and at a 5-year follow-up using a single-item and a 5-item instrument. We used multivariate models to investigate the association between mobbing and incident CVD, hypertension, and change in arterial stiffness and further stratified the models by sex.

Results

After adjustment for confounders, mobbed workers appeared to have a higher risk of incident CVD than those not mobbed (single-item HR = 1.28, 95% CI 0.73–2.24; 5-item HR = 1.57, 95% CI 0.96–2.54). With the 5-item instrument, men who reported mobbing had a higher risk of incident CVD (HR = 1.77, 95% CI 1.01–3.09), while no association was observed for women (HR = 1.05, 95% CI 0.38–2.91). There was no difference in risks between men and women with the single-item instrument. No association between mobbing and incident hypertension and arterial stiffness was seen.

Conclusions/Outlook

Our results show an indication of an increased risk of incident CVD for those mobbed at baseline when using the whole study population. Differences in risks between men and women when using the five-item instrument may be due to the instrument itself. Still, it is essential to detect or prevent workplace mobbing, and if present, to apply an intervention to halt it in order to minimize its adverse effects on CVD.

O-05-02

DEPRESSIVE SYMPTOMATOLOGY IN EARLY RETIREES ASSOCIATED WITH REASON FOR RETIREMENT – RESULTS FROM THE POPULATION-BASED LIFE-ADULT-STUDY

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Introduction

Transition from employment to retirement is regarded a crucial event. However, there is mixed evidence on associations between retirement and mental health, especially regarding early retirement. In Germany, cases of early retirement due to ill health— particularly, mental ill health—are increasing. Therefore, we investigated the association between early retirement and depressive symptoms, including information on different types of early retirement.

Methods

We analyzed data from 4,808 participants of the population-based LIFE-Adult- Study (age: 40–65 years, 654 retired, 4,154 employed), controlling for sociodemographic information, social network, pre-existing health conditions, and duration of retirement. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale. Regression analysis using entropy balancing was applied to achieve covariate balance between retired and employed subjects.

Results

We found no overall-differences in depressive symptoms between employed and retired persons (men: b = −.52; p = 0.431; women: b = .05; p = .950). When looking at different types of early retirement, ill-health retirement was linked to increased depressive symptoms in women (b = 4.68, 95% CI = 1.71; 7.65), while voluntary retirement was associated with reduced depressive symptoms in men (b= −1.83, 95% CI = −3.22; −.43) even after controlling for covariates. For women, statutory retirement was linked to lower depressive symptomatology (b = −2.00, 95% CI = −3.99; −.02).

Conclusions/Outlook

Depressive symptomatology among early retirees depends on reason for retirement: For women, ill-health retirement is linked to higher levels of depressive symptoms. Women who retire early due to ill-health constitute a risk group for depressive symptoms that needs specific attention in the health care and social security system.

O-05-03

ERGONAIR: A QUASI-EXPERIMENTAL STUDY ABOUT PHYSICAL LOADS ON THE MUSCULOSKELETAL SYSTEM OF AIRPORT BAGGAGE HANDLERS WITH AND WITHOUT A JOB SPECIFIC KINETIC TRAINING

Popp J.[1,2], Choudhry J.[1], Keuchel M.[2], Krämer N.[1], Lang K. - H.[2], Schäfer A.[2], Serafin P.[2], Klussmann A.[1,2], Acknowledgements: This study was - among others - financially supported by funds from BG Verkehr and Techniker Krankenkasse. The authors are responsible for the content of this publication.

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Introduction

Physical loads at the workplace are a main source of incapacity for work resulting in considerable costs. According to EU directive 90/269/EEC, occupational manual handling of loads has to be avoided by technical and organizational measures. If this is not possible, additional measures can be implemented, that focus on behavioral changes in the workers. The study evaluates the effects of an educational training program developed for baggage handlers at Hamburg Airport.

Methods

This quasi-experimental trial allocated 52 workers to two groups receiving the educational training program or no intervention. The program consisted of 16 sessions in three simulated work scenarios. Transfer into practice was enhanced with visits at the working place. Primary outcome was the cumulative musculoskeletal load for the back, knee and shoulder region of the workers. It was assessed by a motion-capturing system and video recordings. Measurements were performed before and after the intervention. They were analyzed with ANCOVA-models adjusting for baseline load and additional potential confounders.

Results

For the working scenario of loading baggage at the baggage wagon the adjusted difference between intervention and control group for the cumulative musculoskeletal load of the back was -1455 weighted grade-seconds (95%-CI -2517 – -393), 2227 (1644 – 2810) for the load of the knees and 813 (-523 – 2150) for the load of the shoulders. After Bonferroni correction for multiple tested hypothesis, only the results for the knees were statistically significant. There were no significant differences in the other two scenarios.

Conclusions/Outlook

Behavioral changes were observed in some working scenarios. After the intervention, physical load decreased for the back and increased for the knees.

O-05-04

FOLLOW-UP OF A COHORT OF WORKERS EXPOSED TO ARSENIC IN THE PETROCHEMICAL PLANT OF MANFREDONIA (ITALY)

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Introduction

In 1976, a major chemical accident occurred in a petrochemical plant near Manfredonia (Figure 1) and an estimated 10-39 tonnes of arsenic compounds were released in the atmosphere. Employed workers and contract workers carried the clean-up activities. After the accident, about 1800 workers were present in the petrochemical plant, including workers contracted by minor companies (contract workers), who were mainly assigned to manual work. During the first 6 days after the accident, contract workers and workers from the fertilizer area carried initial cleaning-up activities. In 1996, a Court initiated criminal proceedings against former managers of the plant and medical consultants, and a cohort study was conducted on 1467 workers. Due to a lack of information in the adopted registry, 399 workers who took part in clean-up activities were not enrolled. The last follow-up, conducted in 2016, showed that workers most exposed to arsenic had increases in overall mortality compared to those less exposed and increases in lung cancer risk compared to the general population.

The aim of our study is a follow-up of the complete cohort of 1866 workers exposed to arsenic.

Methods

To update the vital status of the persons in the cohort a record linkage with the General Registry of Manfredonia and with the Registry of the Local Health Authority was used. Furthermore, for those not living in Manfredonia, General Registry Offices were contacted. The outcome of interest for this study will be the overall mortality. Person-years will be calculated from the date of the accident until the date of death, date of loss to follow-up, or March 31, 2021, whichever occurred first. An accelerated time failure approach will be used.

Results

So far, for 23% of the persons enrolled in the cohort vital status has been updated. Preliminary results are shown in Figure 2.

Conclusions/Outlook

This study willgive us the opportunity to investigate the impact of exposure to arsenic on the entire cohort of exposed.

Grafik auf folgender Seite

Figure 1. Area of the study: Manfredonia (1) and the petrochemical plant (2)

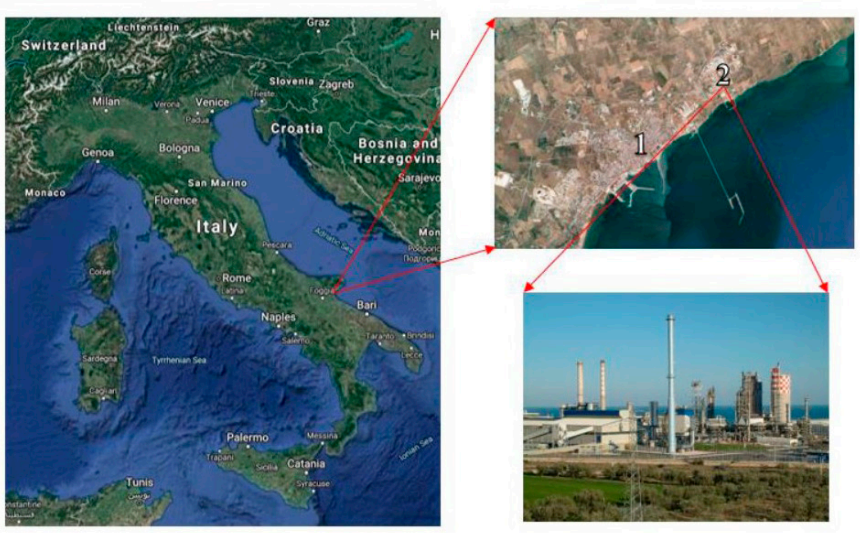

Figure 1
Area of the study: Manfredonia (1) and the petrochemical plant (2)

Figure 2. Flowchart representing the strategies followed to update the vital status of the complete cohort members and to retrieve causes of death. Results on the response from General Registry Offices are updated as at 30.04.2021

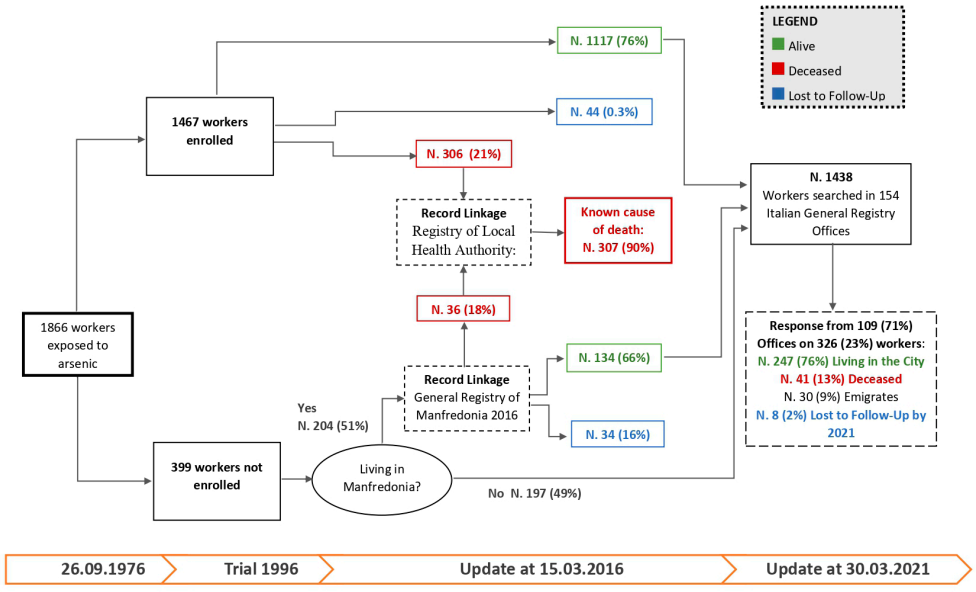

Figure 2
Flowchart representing the strategies followed to update the vital status of the complete cohort members and to retrieve causes of death. Results on the response from General Registry Offices are updated as at 30.04.2021

VORTRÄGE

O-05 | AG SESSION 05 - EPIDEMIOLOGIE DER ARBEITSWELT (SESSION II)

O-05-05

COVID-19-INFEKTIONSRISIKEN IN BERUFEN: ARBEITSBEDINGUNGEN SIND ENTSCHEIDEND

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Introduction

In den Diskussionen um Arbeitsschutzmaßnahmen und priorisierte Impfung einzelner Berufsgruppen zeigt sich die vermutete Bedeutung des beruflichen Umfelds auf das Covid-19-Infektionsgeschehen. Die in einem Beruf typischen Arbeitsbedingungen sind ein entscheidender Faktor, ob infektiöse Krankheiten übertragen werden. Die Differenzierung und Quantifizierung solcher Risiken mit GKV-Routinedaten der AOK Bayern ist das Ziel dieses Beitrags.

Methods

In der Population 1,9 Mio. pflichtversicherter Arbeitnehmer wird das Infektions-Outcome identifiziert durch Krankmeldung oder Krankenhausaufenthalt mit Covid-19-Diagnose im Jahr 2020 (ICD U07.1). Zur Messung berufsspezifischer Risiken wird die Expertendatenbank BERUFENET der Bundesagentur für Arbeit genutzt. Diese erlaubt es, sieben potenziell infektionsrelevanten Arbeitsbedingungen zu unterscheiden. In einer logistischen Regression wird um Confounding durch Alter, Geschlecht, Verdienst, Teilzeitbeschäftigung, regionale Inzidenz sowie Kreistyp bereinigt. Ein ergänzender LASSO-Ansatz identifiziert Berufe, deren Risiko die gemessenen Arbeitsbedingungen nicht hinreichend erklären.

Results

Die wichtigsten Risikofaktoren sind der betreuende Umgang mit Menschen (OR des z-Scores 1.182 [95%-KI 1.153-1.212]), der Umgang mit infizierten Menschen (OR 1.135 [1.110-1.160]), sowie direkter Körperkontakt (OR 1.098 [1.069-1.128]). Einen protektiven Effekt zeigt das Proxy für Potenzial zum Homeoffice (OR 0.912 [0.892-0.933]). Der persönliche Kundenkontakt (1.008 [0.989-1.027]) hat dagegen geringen Einfluss. In der Altenpflege, in Gesundheits- und Krankenpflege, Rettungsdienst und Geburtshilfe, sowie in Reinigungsberufen ist die Ansteckungsgefahr sogar höher als durch die genannten Indikatoren prognostiziert.

Conclusions/Outlook

Die beruflichen Risikofaktoren können genutzt werden, um protektive Maßnahmen gezielt in besonders gefährdete Arbeitsbereiche zu lenken. Die Rolle des Homeoffice für die Pandemiebewältigung wird von den Ergebnissen gestützt.

O-05-06

SARS-COV-2-SEROPRÄVALENZ IN DER GRUPPE DER BESCHÄFTIGTEN IN AMBULANTEN PFLEGEDIENSTEN IN HAMBURG

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Introduction

Insbesondere für Beschäftigte im Gesundheitswesen besteht in der SARS-CoV-2-Pandemie ein hohes Infektionsrisiko. In der ambulanten Pflege suchen die Pflegekräfte pro Arbeitsschicht viele verschiedene Haushalte auf, sodass aufgrund der größeren Anzahl von Kontakten mit den Pflegedürftigen und ihren Angehörigen das Potential einer unerkannten Verbreitung des SARS-CoV-2-Virus über die Hausbesuche besteht. Um Erkenntnisse zur Seroprävalenz und zu möglichen Übertragungswegen in der ambulanten Pflege zu gewinnen, wurde die Studie mit Pflegediensten in Hamburg gestartet. Anhand von Fragebögen sollen berufsspezifische Risikofaktoren identifiziert sowie Angaben zur Impfbereitschaft bzw. stattgefundenen Impfterminen und psychosozialen Belastungen erhoben werden.

Methods

Beschäftigte der ambulanten Pflegedienste in Hamburg wurden in eine explorativen Beobachtungsstudie eingeschlossen. Insgesamt vier Mal in 12 Monaten (Baseline, Follow-up-Untersuchungen nach drei, sechs und 12 Monaten) werden die Teilnehmenden anhand von Tests auf SARS-CoV-2-IgG (Euroimmunanalyser®) auf eine Serokonversion untersucht. Bei positivem Erstbefund wird das Ergebnis überprüft (Roche, Elecsys® Anti-SARS-CoV-2 S).

Results

Die Baseline-Untersuchung erfolgte von Juli - September 2020. Insgesamt wurden 51 Einrichtungen mit 678 Beschäftigten eingeschlossen. In der Baseline wurde bei neun Beschäftigten eine Serokonversion nachgewiesen (1,6%). Die zweite Untersuchungsphase nach 3 Monaten begann im Oktober 2020 (n=577; positiv=9), das dritte Follow-up wird im April 2021 abgeschlossen.

Conclusions/Outlook

Im Sommer 2020 bestand in den teilnehmenden Pflegediensten eine niedrige Seroprävalenz, sodass in dem untersuchten Zeitraum das Infektionsgeschehen und Ansteckungsrisiko für Pflegebedürftige und für die ambulanten Pflegekräfte als gering einzustufen war. Die Studie soll wichtige Ansatzpunkte für Präventionsanforderungen in der ambulanten Pflege liefern und helfen, Bedarfe der Pflegekräfte in Bezug auf psychische Unterstützung zu identifizieren.

O-05-07

UPDATE: INVESTIGATION OF SUPERSPREADING COVID-19 OUTBREAK EVENTS IN MEAT AND POULTRY PROCESSING PLANTS IN GERMANY: A CROSS-SECTIONAL STUDY

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Introduction

Since May 2020, several COVID-19 outbreaks have occurred in the German meat industry, despite various protective measures. Low room temperature and poorly ventilated work areas were considered as potential high-risk factors. This cross-sectional study examined the work conditions in meat and poultry plants associated with the risk of COVID-19.

Methods

Companies completed a questionnaire on the current work environment and measures to prevent SARS-CoV-2 infections. Multivariable logistic regression analysis, adjusted for the possibility to maintain a distance of at least 1.5 meters, break rules, and employment status was performed to identify risk factors, associated with positive COVID-19 test results.

Results

37 meat and poultry plants participated. Preliminary results from seven meat and poultry plants with more than 10 cases showed a COVID-19 prevalence of 12.1%. The highest prevalence was found in the deboning and meat cutting work area (16.1%). A subsample analysis, including information on maximal ventilation rate per employee, revealed an association between the ventilation rate and positive COVID-19 test results (adjusted odds ratio (AOR) 0.996, 95% CI 0.993-0.999). When including temperature in the working areas as an interaction term, the association with the ventilation rate did not change. With increasing room temperature, the chance of testing positive for COVID-19 (AOR 0.90 95% CI 0.82-0.99) decreases. Nevertheless, the chance of testing positive for COVID-19 increases in the interaction term (AOR 1.001, 95% CI 1.000-1.003). Employees working in areas where a physical distance of at least 1.5 m between workers could not be maintained had a higher chance of testing positive for COVID-19 (AOR 3.61; 95% CI 2.83-4.6).

Conclusions/Outlook

Our results indicate that temperature and ventilation conditions and low outdoor air flow are factors that can promote the spread of SARS-CoV-2 aerosols. In the meantime, data on outbreaks in further companies are available and will be assessed and presented.

O-05-08

COHORT STUDY OF THE INCIDENCE OF SARS-COV-2 INFECTION IN PROFESSIONAL ORCHESTRAL MUSICIANS AND CHORAL SINGERS (PROMUSIK)

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Introduction

During the COVID 19 pandemic, professional orchestras and choirs can only perform to a very limited extent and under strict hygiene and seating regulations, and amateur ensembles are largely prohibited from doing so. This is based on the assumption that aerosol formation in wind and brass instruments and choir singers as well as cramped working conditions mean an increased risk of infection for all ensemble members.
The primary objective of our study is to determine the incidence of SARS-CoV-2 infection among musicians in professional concert or opera orchestras and choirs compared to non-musician controls. Secondary objectives included the incidence of other respiratory infections such as influenza or flu and the number of days of illness.

Methods

In the prospective cohort study, the exposure is the activity as professional orchestra musicians or choir singers in publicly funded ensembles throughout Germany, each in comparison to non-musician control subjects. The primary endpoint is the incidence of SARS-CoV-2 infection (as a function of time at risk). Additional influencing factors include working conditions, personal behavior, and non-occupational risk factors. Participants complete an online questionnaire on a weekly basis.

Results

(Baseline): From October 2020 to June 2021, a total of 1,122 individuals (mean age 46.7±10.4 years) from 24 ensembles participated (orchestra: n=720, m/f/d 264/456/0; choir: n=155, m/f/d 100/55/0; control group: n=247, m/f/d 157/88/2). Ensembles largely continued to perform under occupational hygiene conditions, even during lockdown periods.

Conclusions/Outlook

The results of this study will help to assess the risk of professional musical activities in order to make recommendations for further concert and opera activities.

VORTRÄGE

O-06 | AG SESSION 06 - EPIDEMIOLOGISCHE METHODEN UND STATISTISCHE METHODEN IN DER EPIDEMIOLOGIE (SESSION I)

O-06-01

TO USE OR NOT TO USE A SEQUENTIAL CONTROL DESIGN: DO PATIENT CHARACTERISTICS DIFFER AT BASELINE?

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Introduction

ZSE-DUO (Dual guidance structure in Centres for Rare Diseases) is a multicentre study (funding by G-BA, Grant 01NVF17031) in 11 Centres for Rare Diseases (ZSE), evaluating the benefit of involving a psychiatric/psychosomatic expert in the diagnostic process. For pragmatic reason a sequential control design (SCD) was chosen. Patients were consecutively enrolled first in the control (CG) and secondly in the intervention (IG) group. The aim of this analysis was to detect potential differences in the presented symptom groups and quality of life (QoL) at baseline.

Methods

Symptom groups were extracted separately for the CG and IG from PHQ-15 (somatoform disorder) by principal component analysis. QoL was assessed by EQ-5D index and SF-12 (physical/ mental component scale, PCS/ MCS). Sociodemographic characteristics were documented.

Results

Between 10/2018 and 1/2021, 639 patients ≥18years were consecutively enrolled each in the CG and IG respectively. Univariate analyses revealed no differences in age or sex between CG and IG (median age CG 48 years, IQR 35-57, IG 47 years, IQR 33-57; 61% female in CG and IG), also the same symptom groups were extracted from the PHQ-15. Similar amount of patients were categorised in the following groups: gastro-intestinal (CG 11%, IG 11%), cardiovascular (CG 5%, IG 5%), musculo-skeletal symptoms (CG 34%, IG 39%), high somatised (CG 44%, IG 39%), unspecific symptoms (CG 5%, IG 7%; p=0.17). However, IG patients had a higher mean EQ-5D index 0.67±0.2 (CG 0.64±0.2; p=0.04) and MCS 46.6±11.9 than CG patients (43.9±12.0; p=0.01). No differences were observed for mean PCS (CG 31.3±10.9; IG 31.5±11.1; p=0.06).

Conclusions/Outlook

Due to the SCD, patients were not randomly assigned to CG and IG. With regard to somatic characteristics, patients of both groups were equally distributed, while differences in subjective assessments of QoL occurred. External circumstances have changed substantially (e.g. pandemic) during recruitment. This should be considered evaluating the ZSE-DUO study.

O-06-02

ASSESSING EXCESS MORTALITY IN TIMES OF PANDEMICS BASED ON PRINCIPAL COMPONENT ANALYSIS OF WEEKLY MORTALITY DATA – THE CASE OF COVID-19

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Introduction

The current outbreak of COVID-19 has called renewed attention to the need for sound statistical analysis for monitoring mortality patterns and trends over time. Excess mortality has been suggested as the most appropriate indicator to measure the overall burden of the pandemic on mortality. As such, excess mortality has received considerable interest during the first months of the COVID-19 pandemic.

Previous approaches to estimate excess mortality are somewhat limited, as they do not include sufficiently long-term trends, correlations among different demographic and geographic groups, and the autocorrelations in the mortality time series. This might lead to biased estimates of excess mortality, as random mortality fluctuations may be misinterpreted as excess mortality.

Methods

We propose a novel approach that overcomes the named limitations and draws a more realistic picture of the excess mortality. Our approach is based on an established forecasting model in demography, namely the Lee-Carter model. We illustrate our approach using weekly age- and sex-specific mortality data for 19 countries and the current COVID-19 pandemic as a case study.

Results

Our findings show evidence of considerable excess mortality during 2020, which affected different countries, age- and sex groups heterogeneously.

Conclusions/Outlook

Our proposed model can be applied to future pandemics as well as to monitor excess mortality from specific causes of deaths.

O-06-03

REUSE AND INTEGRATION OF RESEARCH DATA - EXPERIENCES OF THE NAPKON INTEGRATION CORE

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Introduction

In the early phase of the COVID-19 pandemic, many local collections of clinical data were initiated in Germany with the goal to generate databases of COVID-19 patients for fast evidence generation. In the context of NAPKON (German National Pandemic Cohort Network) of the Network University Medicine (NUM) an Integration Core was established to identify challenges of, and propose solutions for, the integration of such data regarding regulatory, technical and content-related issues. Here, we describe the processes and measures taken to facilitate the integration of existing datasets into the NAPKON cohorts.

Methods

First, a feasibility survey was performed to ascertain study information and the level of interest in cooperation. This was then extended to a query of defined regulatory and study documents. The documents were compiled in a data extraction form and evaluated by a Review Board according to defined minimal inclusion criteria. Two use-cases were selected to evaluate feasibility and to adapt the implementation process: adaption regulatory documents, definition of reimbursement, addressing of quality issues and technical implementation.

Results

Overall, 20 of 30 interested cohort holders responded to the query. After thorough review a heterogeneous picture emerged of the content of patient information and ICF regarding the pseudonymous sharing of data and the possibility to re-contact patients. A large proportion of participating cohorts (n=13) met the defined minimal inclusion criteria whilst the regulatory documents of some studies (n=4) required adjustments. The remaining three cohorts were not suitable for direct inclusion due to regulatory issues.

Conclusions/Outlook

Due to various data protection and ethical issues, new approaches had to be developed by the NAPKON Integration Core to make the large amount of data from different cohorts available for the NUM network. These procedures and the handling of challenges encountered in the development process can be transferred to other disease areas.

O-06-04

STUDYING LONG-TERM HEALTH AND QUALITY OF LIFE AFTER INFECTION WITH SARS-COV-2: DESIGN AND RATIONALE OF THE POPULATION-BASED NAPKON POP STUDY

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Introduction

Over the course of COVID-19 pandemic, evidence accumulates that SARS-CoV-2 infections might affect multiple organs and that sequelae can occur. We, therefore, aimed to thoroughly assess potential long-term health consequences in representative samples of SARS-CoV-2 infected individuals from three different target regions in Germany.

Methods

The study has been established within the clinical-scientific infrastructure of NAPKON (German National Pandemic Cohort Network) of the Network University Medicine (NUM), funded by the Federal Ministry of Education and Research (BMBF). The population-based cohort platform (POP) within NAPKON is providing data on detailed health assessments, obtained 6-12 months after the acute infection, from representative samples of SARS-CoV-2 infected individuals in three catchment areas: Berlin Neukölln, Unterfranken and Schleswig-Holstein. Hospitalized and non-hospitalized adult SARS-CoV-2 infected individuals living in the target regions were identified and contacted via the local public health authorities.

Results

At all three sites, a harmonized protocol is being performed, consisting of detailed assessments of medical history, anthropometry, lung function, cardiac structure and function, neurological status, mental health, olfactory and gustatory function, and blood analyses. In parallel, multiple bio samples (e.g. serum, plasma, saliva) are being collected. Until April 2021, 5,413 individuals of the study regions have been invited to participate, of whom 540 have completed baseline examination.

Conclusions/Outlook

NAPKON POP complements other studies about long-term consequences of infection with SARS-CoV-2 by providing detailed health data of representative population-based samples, including individuals with various degrees of severity at the initial SARS-CoV-2 infection.

VORTRÄGE

O-07 | AG SESSION 07 - NEUROLOGISCHE UND PSYCHIATRISCHE EPIDEMIOLOGIE

O-07-01

PRE-OPERATIVE CONCENTRATION OF PRO-INFLAMMATORY MARKERS AND RISK OF POST-OPERATIVE DELIRIUM AND POST-OPERATIVE COGNITIVE DYSFUNCTION: A COHORT STUDY OF OLDER SURGICAL PATIENTS

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Introduction

The inflammatory response to surgery has been implicated as a contributor to the pathogenesis of post-operative delirium (POD) and post-operative cognitive dysfunction (POCD), but whether or not levels of pro-inflammatory markers measured before surgery may predict the risk of these conditions is unclear. Here, we determined the associations of pre-operative levels of four pro-inflammatory markers with risk of POD and POCD.

Methods

Data from 697 participants aged ≥65 years of the Biomarker Development for Postoperative Cognitive Impairment in the Elderly (BioCog) study were used. Levels of C-reactive protein, interleukin-6, interleukin-18 and S100A12 were measured before surgery. Incident POD was assessed twice daily up to 7 days past surgery/hospital discharge. Incident POCD was determined from repeat neuropsychological testing in a subset of 469 attendees of a 3-month follow-up assessment. Multiple logistic regression analyses determined the associations of each inflammatory marker with risk of POD and POCD respectively. Analyses controlled for age, sex, fasting, surgery type, duration of anesthesia, body mass index, diabetes, coronary heart and cerebrovascular disease.

Results

141 patients (20.2% of 697) developed POD and 50 patients (10.7% of 469) developed POCD. Higher pre-operative S100A12 concentrations were statistically significantly associated with an increased POD risk (odds ratio in the highest versus lowest quartile, 2.16; 95% CI 1.21, 3.85; p trend, 0.02). The remaining markers were not statistically significantly associated with POD, and none was statistically significantly associated with POCD.

Conclusions/Outlook

Independently from several potential confounders including the presence of vascular disease and vascular risk factors, higher S100A12 levels before surgery predisposed patients to an increased risk of developing POD. Our findings suggest that pre-operative S100A12 may influence individual vulnerability to the pathogenesis of POD.

O-07-02

STROKE DURING THE FIRST WAVE OF THE COVID-19 PANDEMIC – A COMPARISON OF NUMBERS, TREATMENTS AND IN-HOSPITAL MORTALITY DURING THE APRIL TO JUNE PERIODS IN 2019 AND 2020

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IntroductionBased on administrative data a strong decline of hospitalized cases with an acute ischemic stroke (AIS) or a transient ischemic attack (TIA) and an increased in-hospital mortality was reported for the beginning of the COVID-19 pandemic in mid-march 2020.

Aim of the study was to compare number of cases, time between admission and treatment as well as in-hospital mortality in the pre pandemic second quarter (Q2) 2019 vs. the pandemic Q2 2020.

Methods

We analyzed data of the quality assurance stroke register of northwestern Germany (Qualitätssicherung Schlaganfall Nordwestdeutschland, QSNWD) and included 117 hospitals that continuously transmitted data since 2015. The time interval between admission and treatment was calculated for patients with cerebral infarction receiving intravenous thrombolysis within a time interval from event to admission of ≤4 hours and a National Institutes of Health Stroke Scale (NIHSS) ≥4. Differences were compared by chi-square test with a significance level of alpha=0.05.

Results

Number of admitted cases was 23,231 in Q2 2019 and 16% lower in Q2 2020 (n=19,498). Frequency of TIA (G45; 25.7% vs. 25.1%), AIS (I63; 68.5% vs. 68.5%), cerebral hemorrhage (I61; 5.0% vs. 5.5%) and subarachnoid haemorrhage (I60; 0.7% vs. 0.7%) was similar in Q2 2019 and Q2 2020, respectively.

Proportion of cases with a time interval between admission and thrombolysis of ≤60 minutes did not differ significantly (85.7% vs. 84.2%; p=0.32) and in-hospital mortality was comparable between both time periods (5.73% vs. 5.99%; p=0.26).

Conclusions/Outlook

We observed a 16% decline of documented stroke cases assessed in the quality assurance register at the beginning of the pandemic in Q2 2020 compared to the respective quarter in the year before. In this quarterly analysis, no substantial differences of diagnoses, time between admission and thrombolysis or in-hospital mortality was apparent. These results indicate a consistent quality of care for stroke patients despite the challenges of the COVID-19 pandemic.

O-07-03

FEELINGS OF GUILT IN THE GENERAL ADULT POPULATION: PREVALENCE, INTENSITY AND ASSOCIATION WITH DEPRESSION

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Introduction

To feel guilty can motivate for prosocial behavior but may also lead to negative health-related outcomes. The aim of this study was to provide epidemiological information on guilt feelings in the German general adult population.

Methods

Based on findings from a nation-wide telephone survey (n=1,003 adults aged 18+ years), we calculated weighted point prevalence rates for guilt feelings and used multivariable logistic regression analyses to evaluate the association between the guilt feelings and covariates.

Results

Prevalence of current guilt feelings was 10.6% (95%-CI=8.7-12.6). About one fourth of the adults with current guilt feelings rated the intensity of their feelings as 'rather strong' or 'very strong'. To feel guilty was unrelated to age, sex and education, but significantly associated with depression. The weighted prevalence of guilt feelings in adults with major depression was 37.4% (95%-CI=26.2- 48.7) compared to 8.1% (95%-CI=6.4-9.9) in adults without.

Conclusions/Outlook

A substantial part of the German adult population is confronted with guilt feelings. Feeling guilty seems to be less dependent on rather global socio-demographic characteristics than on others factors like depression. More efforts have to be made to identify those specific circumstances, under which feelings of guilt lead to adverse health-related outcomes and to provide corresponding treatment approaches.

O-07-04

VERLAUF KOGNITIVER LEISTUNGSFÄHIGKEIT BEI GESUNDEN, ALTERNDEN MÄNNERN UND FRAUEN – ÄNDERUNGEN UND EINFLUSSFAKTOREN

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Introduction

Verlauf und Einflussfaktoren kognitiver Leistungsfähigkeit bei gesunden Männern und Frauen über die Lebenszeit sind bisher wenig untersucht, da dies Langzeitkohortenstudien erfordert.

Methods

Es wurden Daten der bevölkerungsbasierten Kohorte der BiDirect-Studie verwendet. Zu drei Zeitpunkten im Abstand von 2-3 Jahren wurden Interviews, Untersuchungen und kognitive Tests (Farbe-Wort-Interferenz-Test (FWT), Trail Making Test (TMT A und B), Wortflüssigkeitstest (Tiernamen), verbaler Merkfähigkeitstest (12 Wörter), Perdue-Pegboard) durchgeführt. Insgesamt wurden 798 Probanden im Alter von 35-66 Jahren in die Analyse eingeschlossen. Mithilfe linearer gemischter Modelle wurden Alterstrajektorien zu den kognitiven Testscores berechnet und der Einfluss von Depression (CES-D Score), Bluthochdruck und Diabetes, adjustiert für Bildung und Übungseffekte ermittelt.

Results

Für alle kognitiven Tests war eine Abnahme der kognitiven Leistungsfähigkeit mit zunehmendem Alter zu beobachten. Im Mittel schnitten Frauen besser in der verbalen Merkfähigkeit, der Wortflüssigkeit, dem FWT und dem Pegboard-Test ab, wobei die Trajektorien mit Ausnahme der Wortflüssigkeit (konvergenter Verlauf) eher parallel verliefen. Ein langjähriger Diabetes war negativ mit der Leistung im Pegboard bei Männern (β =-0.92, 95% KI = [-1.35; -0.49]), im FWT bei Männern (-1.19, [-1.68; -0.69]), im TMT A bei Männern (-0.68, [-1.18; -0.19]) und im TMT B bei Männern (-0.52, [-1.02; -0.03]) und Frauen (-0.64, [-1.10; -0.19]) assoziiert. Der CES-D-Score war negativ mit der Leistung im Pegboard sowie im TMT A (nur Frauen) und TMT B assoziiert.

Conclusions/Outlook

Kognitive Leistungsverläufe und ihre Einflussfaktoren unterscheiden sich für Männer und Frauen. Die Ergebnisse helfen Lebensverlaufsänderungen bei „Gesunden“ einzuordnen und Präventionsmöglichkeiten eines kognitiven Abbaus in der Bevölkerung zu identifizieren.

O-07-05

COMPARISON OF WHITE MATTER HYPERINTENSITY SEGMENTATION ALGORITHMS IN MIDDLE-AGED HEALTHY MEN AND WOMEN

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Introduction

White matter hyperintensities (WMH) are a common finding in neuroimaging studies. While manual segmentation is still the gold standard for the quantification of WMH, many fully automated segmentation algorithms are now available that work more rapidly and are widely independent of rater experience. However, their performance in populations with a low median lesion volume is not yet evaluated.This work aims to evaluate the performance of widely applied neuroimaging tools (CAT12, Freesurfer) and more specific WMH segmentation algorithms (LST, BIANCA) compared to manual segmentation.

Methods

A random set of T1w and FLAIR images from healthy participants (n = 80, aged 57,5 years, 12 subjects without WMH) was drawn from the BiDirect study at baseline and follow-up (~ 5 years later). Two raters first segmented WMH manually with FSLeyes in the FLAIR images interchangeably. Four WMH segmentation algorithms were then applied on the same T1w and FLAIR images: CAT12 (Gaser, 2020), Freesurfer, LST (Schmidt. et al., 2012) and BIANCA (Griffanti et al., 2016).

Results

The algorithm performance is visualized (figure 1) using the volume difference between algorithm predicted volume and manually segmented volume. A positive volume indicates an overestimation by the algorithm, while a negative volume indicates an underestimation of the algorithm in comparison to the manual standard. Each subplot is separated by session (baseline and follow-up) and algorithm.All algorithms showed a significant (<0.0001) association of manually segmented WMH volume and algorithm-predicted WMH volume. BIANCA showed the best performance (table 1) across all tools with a mean volume difference of 0.12 ml at baseline and 0.4 ml at follow-up, median of 0.15 ml at baseline and of 0.31 ml at follow-up.

Conclusions/Outlook

Our data support the use of BIANCA or LST toolbox for WMH segmentation in studies with a majority of participants with no or little WMH volume.

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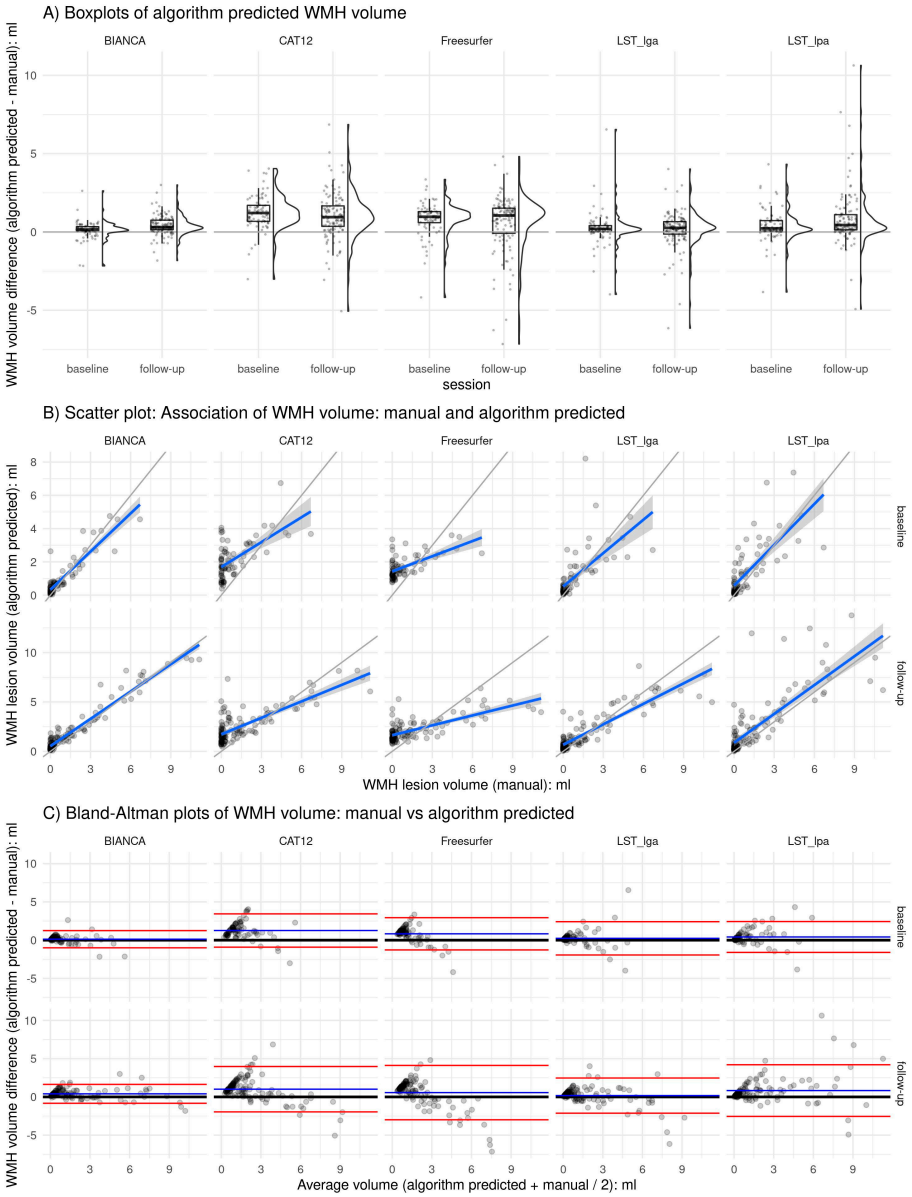

Comparison of the WMH segmentation performance of algorithm and manual segmented volume.

Table 1: Descriptive statistics of the WMH, the volume difference (algorithm predicted - manual segmented volume) and the association of both stratified by algorithms and sessions.

Algorithm	Session		WMH volume				WMH volume difference				Association of algorithm and manual prediction				
Method	Session	n (obs.)	mean	median	sd	iqr	mean	median	sd	iqr	r-value	p-value	r^2	intercept	slope
BIANCA	baseline	80	0.86	0.23	1.35	0.9185	0.12	0.15	0.57	0.31	0.91	< 0.0001	0.83	-0.20	1.08
BIANCA	follow-up	121	1.61	0.39	2.46	2.0660	0.40	0.31	0.63	0.60	0.97	< 0.0001	0.93	-0.43	1.01
CAT12	baseline	80	0.86	0.23	1.35	0.9185	1.26	1.21	1.11	1.02	0.61	< 0.0001	0.37	-0.72	0.75
CAT12	follow-up	121	1.61	0.39	2.46	2.0660	1.01	0.95	1.51	1.30	0.79	< 0.0001	0.63	-1.36	1.13
Freesurfer	baseline	80	0.86	0.23	1.35	0.9185	0.83	0.97	1.08	0.71	0.62	< 0.0001	0.39	-1.30	1.28
Freesurfer	follow-up	121	1.61	0.39	2.46	2.0660	0.57	1.05	1.81	1.60	0.73	< 0.0001	0.53	-1.83	1.58
LST_lga	baseline	80	0.86	0.23	1.35	0.9185	0.24	0.19	1.11	0.39	0.67	< 0.0001	0.44	0.13	0.66
LST_lga	follow-up	121	1.61	0.39	2.46	2.0660	0.17	0.26	1.17	0.79	0.89	< 0.0001	0.78	-0.41	1.13
LST_lpa	baseline	80	0.86	0.23	1.35	0.9185	0.42	0.23	1.03	0.68	0.74	< 0.0001	0.55	0.00	0.67
LST_lpa	follow-up	121	1.61	0.39	2.46	2.0660	0.83	0.44	1.72	0.97	0.81	< 0.0001	0.66	-0.04	0.68

Descriptive statistics of the WMH volume difference (algorithm predicted - manual segmented volume)

VORTRÄGE

O-08 | AG SESSION 08 - EPIDEMIOLOGISCHE METHODEN UND STATISTISCHE METHODEN IN DER EPIDEMIOLOGIE (SESSION II)

O-08-01

VARIATIONS OF THE METABOLIC SYNDROME IN A REPEATED MEASUREMENTS STUDY

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Introduction

The definition of the metabolic syndrome consists of five components. The underlying measurements are subject to intra-individual variability. There is no repeated measurements study investigating intra-individual variations of the metabolic syndrome as a result of its varying components and their combination.

Methods

Twenty-five volunteers aged 22 to 70 years were examined once a month over one year. Examinations included blood sampling and anthropometric and blood pressure measurements. Laboratory measurements included glucose, cholesterol (high-density lipoprotein [HDL], and low-density lipoprotein [LDL]), and triglycerides. The metabolic syndrome was defined according to the International Diabetes Federation modified for non-fasting blood samples. Variations in continuous metabolic markers were assessed using coefficients of variation (CV) and intra-class correlation coefficients (ICC).

Results

Overall eight participants (32%) were categorized at least once within 12 months as having a metabolic syndrome; in none of those the metabolic syndrome was found consistently over the whole study follow-up. The Cohen's Kappa for the metabolic syndrome was 0.57. CV was highest for triglycerides (27.5%) followed by glucose (10.1%), LDL- (9.5%), and HDL-cholesterol (8.6%). ICC's were lowest for glucose (0.51), triglycerides (0.65), systolic (0.68), and diastolic blood pressure (0.69).

Conclusions/Outlook

We showed that the measurement of the biomarkers for defining the metabolic syndrome is a time-varying condition with implications for the concept of the metabolic syndrome. To account for this uncertainty in prevalence studies we propose to identify uncertain cases according to the current definition of the metabolic syndrome. For analysing associations we recommend to apply probabilistic sensitivity analyses.

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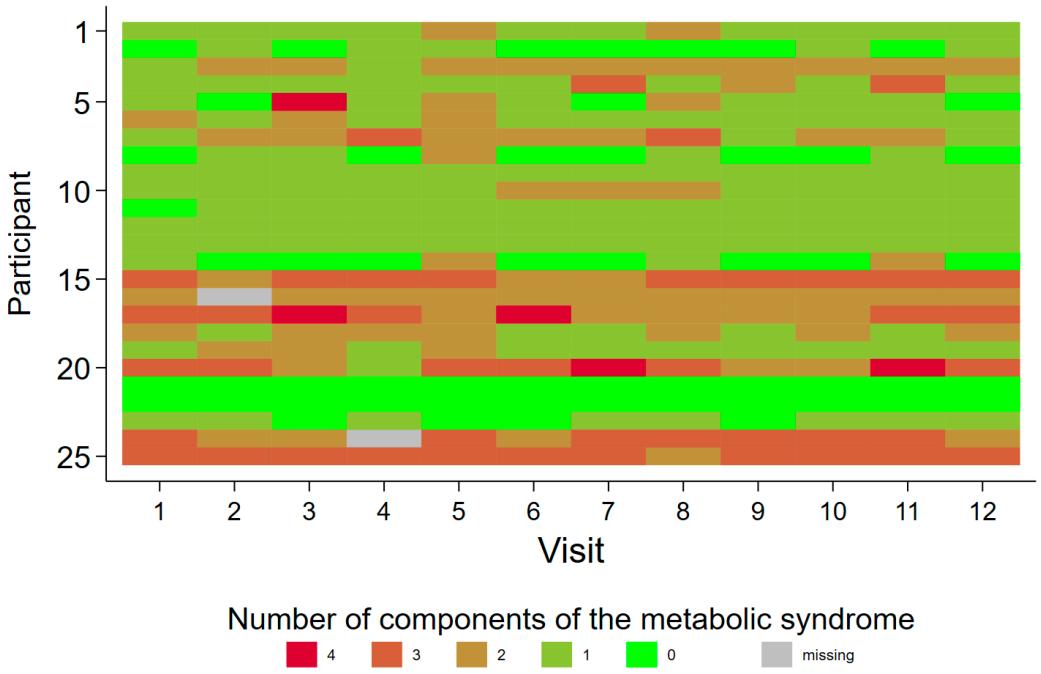

Individual variations of the number of components of the metabolic syndrome over the twelve visits

O-08-02

APPLICATION OF MACHINE LEARNING IN EPIDEMIOLOGICAL RISK PREDICTION: A REAL-LIFE STUDY ON COLORECTAL CANCER

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Introduction

Machine learning comprises a variety of techniques that may prove useful in epidemiologic analyses by offering solutions to challenges related to complex data modelling of large data sets and advancing risk prediction of chronic diseases. Our objective was to evaluate the application of machine learning methods at different stages of risk prediction modelling in a large prospective cohort study on colorectal cancer (CRC).

Methods

The empirical evaluation of the machine learning techniques was based on data from the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort study. As a first step, based on data from 329,885 participants with available lifestyle, anthropometric and dietary information, random survival forest and elastic net regularization with bootstrapping were used to select an optimal set of predictors for the development of CRC. As a next step, using data from a nested case-control study of 1,320 CRC cases and 1,320 matched controls, the added predictive value of 41 biomarkers beyond established risk factors was assessed. Inverse probability weighting was applied in order to model absolute risk based on the baseline hazard of the full cohort population. Using random survival forests, variable importance and minimal depth were assessed as estimates of added predictive value. Optimal combinations of biomarkers were selected using elastic net regularization with bootstrapping.

Results

A lifestyle-based model for the prediction of absolute risk of CRC with good discrimination and calibration was developed based on a data driven selection of established risk factors. Optimal combinations biomarkers with substantially added predictive value beyond the established risk factors were evaluated.

Conclusions/Outlook

Machine learning proved useful in epidemiological risk prediction with successful applications in variable selection and assessment of added predictive value.

O-08-03

CAUSAL IMPACT OF BODY FAT DISTRIBUTION ON BREAST, ENDOMETRIAL, AND OVARIAN CANCER: A TWO-SAMPLE MENDELIAN RANDOMIZATION STUDY

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Introduction

There is mounting evidence that obesity increases gynecologic cancer risk but the role of body fat distribution is less clear. We used a two-sample Mendelian randomization (MR) approach to elucidate the association between measures reflecting general obesity and body fat distribution and the risk of breast, endometrial and ovarian cancer including different histotypes.

Methods

In addition to BMI the body composition was described by trunk, arm, and leg fat ratios (TFR, AFR, LFR) obtained from a segmental bio-electrical impedance analysis (BIA). Meta analyses of genome-wide association studies included 434,794 European women with BMI and 195,043 with BIA measurements. Causal effects were estimated within the radial regression framework. Estimates represent odds ratios per one SD increment in the respective exposure. Robust sensitivity analyses were performed to verify MR assumptions. In a multivariable MR setting the proportion of risk attributable to overall and abdominal fat content was assessed.

Results

Genetically predicted BMI was inversely associated with overall breast cancer (OR=0.86; 95% CI: [0.81, 0.91]) and its subtypes ER- and ER+ but positively with endometrial (OR=1.75; 95% CI: [1.57, 1.95]) and ovarian cancer (OR=1.12; 95% CI: [1.03, 1.23]) including the endometrioid histotype. These estimates were confirmed using AFR as proxy for overall body fat content. TFR, which represents abdominal fat content, was strongly associated with ovarian cancer (OR=1.10; 95% CI: [1.01, 1.18]) and weakly with breast cancer (OR=1.05; 95% CI: [1.00, 1.10]) and its ER+ subtype; further positive associations could be observed with the clear cell and endometrioid histotypes.

Conclusions/Outlook

Overall fat content is causally inversely associated with breast cancer, and positively related to endometrial and ovarian cancer. Visceral fat seems to be a driver of elevated overall ovarian cancer risk and particularly of endometrioid and clear cell histotypes.

O-08-04

ROUGHNESS PENALTY APPROACH TO ESTIMATE EXCESS MORTALITY IN CHRONIC CONDITIONS FROM PREVALENCE AND INCIDENCE DATA: FEASIBILITY STUDY IN DATA ABOUT TYPE 2 DIABETES IN 35 MILLION MEN FROM THE GERMAN STATUTORY HEALTH INSURANCE

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Introduction

Given the general mortality (m) in a population, it is possible to estimate the excess mortality of a chronic condition from age-specific prevalence (p) and incidence (i) via a partial differential equation (PDE) [1]. Excess mortality is quantified by the age-specific hazard ratio (HR), i.e. the quotient of the mortality rates with and without the condition. When mortality is low (usually in lower age groups), the estimates of the HR are prone to errors in the input data. By errors we mean e.g. limited diagnostic accuracy [2] or sampling errors in p and i. In this work, we present a new method to make the estimation of HR from p and i more robust.

Methods

We follow the roughness penalty approach [3] to find a balance between the model's goodness of fit (F) and the integrated square deviation from the PDE (P). The balance is achieved by minimizing the functional F = F + -P, where -is the penalty parameter (see Figure 1). The approach is applied to the claims data about type 2 diabetes comprising p and i in a population of 35 million men during 2009-15 [4]. Data p and i are fitted by an expit and an exponential model, respectively, m stems from the Federal Statistical Office. Range of -is from 10^1 to 10^6, minimization of F is done by the BFGS and the CG method. Estimated HRs at 30 and 90 years of age are compared with values from [5].

Results

All minimization runs of BFGS and CG converge over the full range of -. Compared to [5], the BFGS method yields reasonable estimates for -< 10^4. For greater -the BFGS estimates of HR at age 30 become instable. The CG method yields reasonable estimates for -> $5 \cdot 10^4$ (Figure 2).

Conclusions/Outlook

This feasibility study shows that the approach of [3] may provide reasonable estimates for excess mortality from prevalence and incidence data in chronic conditions.

References
1) DOI 10.1186/s12889-019-7201-7
2) DOI 10.12688/f1000research.28023.1
3) DOI 10.1080/01621459.2013.794730
4) DOI 10.20364/VA-17.03
5) DOI 10.1136/bmjopen-2020-041508

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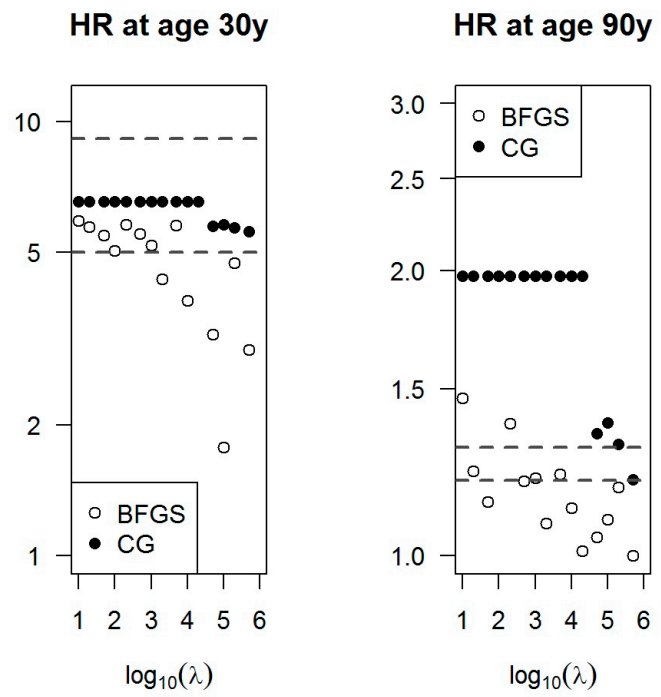

Figure 2
Estimated hazard ratios (HR) at ages 30 (left panel) and 90 (right panel) over the logarithm of the relaxation parameter lambda. Open and solid circles indicate estimates of the BFGS and CG optimization, respectively. For comparison, the 95% confidence bounds from [5] are indicated by gray dashed lines in the left and right panel.

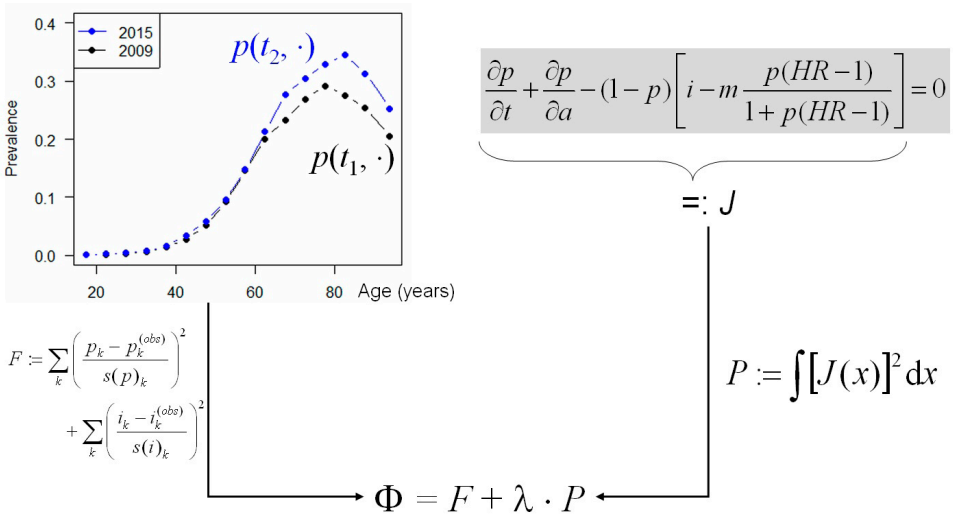

Figure 1
Flow chart for defining the functional to be minimized

O-08-05

INTRODUCING BIAS IN A PROSPECTIVE COHORT STUDY THROUGH DISCLOSED WHOLE-BODY MAGNETIC RESONANCE IMAGING FINDINGS

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Introduction

Whole-body magnetic resonance imaging (wb-MRI) is frequently used in state-of-the art population-based research. However, the effects of disclosing imaging findings on the course of health care utilization is still insufficiently studied.

Methods

5019 participants were analyzed from the German Study of Health in Pomerania (SHIP), a general population cohort study in Pomerania. The follow-up time was two years. In total, 2778 participants took part in a wb-MRI examination in addition to an extensive clinical examination. Cost data from the statutory health insurance was available (95% consented to linkage) and classified in five categories: total health care costs, costs related to primary care, specialist care, laboratory tests, and imaging. MRI non-participants served as a control group for MRI participants, using propensity score weighting to balance characteristics. Two-part models were used to assess effects of MRI-participation on costs.

Results

In total 948 MRI participants were notified about at least one wb-MRI findings. Findings in 769 participants (81%) were related to masses and lesions. Average costs for clinical imaging approximately doubled when comparing the quarter before and after the MRI. Average treatment effects on total outpatient costs due to MRI amounted to €295 (95%CI: 134; 456) per participant during the two years following the examination, equaling about 10% of the total average outpatient health care costs.

Conclusions/Outlook

There is evidence of sizeable intervention effects due to the disclosure of imaging findings from wb-MRI examinations in this general population cohort. The prospective study of health care utilization has therefore been biased and the generalizability of findings to the underlying population is impaired. The findings also illustrate, that additional costs may be inflicted to the health care system due to the conduct of a population-based study. From a research perspective, a more restrictive communication policy would have been recommendable.

O-08-06

WILLINGNESS TO PERFORM STANDARDIZED HOME BLOOD PRESSURE (SELF-) MEASUREMENT IN A HEALTH SURVEY CONTEXT

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Introduction

Standardized home blood pressure measurement would benefit both epidemiological and clinical studies but has not yet been piloted. The aim of the study was to investigate the willingness to participate in standardized home blood pressure measurement in a health examination survey.

Methods

The study was carried out as part of the nationwide GEDA 2019/2020-EHIS study, a general population telephone health interview survey. A subsample of 6,469 participants were asked whether they would take part in a study in which they could measure their blood pressure in the morning and in the evening on three days with a device sent free of charge by the Robert Koch-Institute with video instructions provided.In order to analyze the influence of various factors on willingness a weighted logistic regression model was calculated (n=6,137). The covariates include different socio-demographic variables, health variables and aspects of health behavior.

Results

38,1% wanted to take part in such a study, 61.9% refused. Willingness was associated with educational level (highest to lowest OR:2.1 [95% CI:1.6–2.7 and middle to lowest OR:1.4 [95%-CI:1.1–1.8]). In addition, people who describe their state of health as mediocre were less willing to participate than people in very good health (OR:0.9 [95%-CI:0.4–0.9]) as well as people without chronical illness (OR:0.6 [95%-CI:0.5–0.7]). Self-reported hypertension was not associated with willingness to participate.

Conclusions/Outlook

The results provide insights into possible self-selection issues and non-response bias in carrying out standardized self-administered home blood pressure measurements in general population epidemiological studies. A limiting factor of the results is that it was not actual behavior that was measured, but behavior at the attitude level. The results will be complemented with qualitative interviews and a feasibility study will follow.

VORTRÄGE

O-09 | AG SESSION 09 - UMWELTMEDIZIN, EXPOSITIONS- UND RISIKOABSCHÄTZUNG

O-09-01

INVISIBLE DANGER. KNOWLEDGE ABOUT RADIATION FROM RADON

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Introduction

Radiation from Radon is the main cause of lung cancer in non-smokers. Building on the European Directive 2013/59/EURATOM, the newly created German Radiation Protection Act (StrlSchG) of 2017 and the German Radiation Protection Ordinance (StrlSchV) also require precautionary measures to be taken against radiation from Radon. Thereby, 53 % of the German population have never or only slightly dealt with the issue of radiation exposure (Götte, Ludewig 2019). For these reasons, it is particularly relevant to develop a communication strategy for radon protection.
In order to create a basis, we address the question which social-epidemiological parameters are related to knowledge about radon radiation.

Methods

We collected our data as part of the StraKoRa project (conducting surveys and developing an optimised strategy for communicating radon risks and protection measures), which is funded by the Saxon State Ministry for Energy, Climate Protection, Environment and Agriculture. With the help of the residents' registration offices, we realised a random sample in four regions of Saxony with low to high radon concentrations in February 2021. We followed a selective mixed-mode design with push2web and push2paper. To investigate our research question, we calculate OLS estimates, taking interaction effects into account.

Results

First results indicate that men, older people and people with more years of education are associated with higher radon knowledge.

Conclusions/Outlook

The results of our study help to identify groups of people whose knowledge about radon radiation is low. Thus, we identify target groups for an efficient communication strategy on radon protection.

O-09-02

A REVIEW OF THE RELIABILITY OF URINARY BIOMARKERS FOR ENVIRONMENTAL TOXICANT EXPOSURES

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Introduction

Epidemiological studies predominantly rely on single metabolite measurements. The right classification of individuals into exposed and non-exposed is especially crucial in studies investigating the effects of environmental toxicants. However, intra-individual variations might lead to misclassifications and biased results. To assess the extent of variability and reliability in a metabolite, the intraclass correlation coefficient (ICC) is computed.

Methods

A search was conducted in three databases from the start of 2000 until August 2020 to identify literature presenting ICC estimates for metabolites measured over several time points. For metabolites occurring ≥ 10 times in the selected studies, a meta-analysis is performed.

Results

The search resulted in the inclusion of 167 studies, 83 studies assess the variability of environmental toxicants, of which 39 were included in the quantitative analysis. The ICCs of seven metabolites are meta-analysed. The reliability of (unadjusted concentrations) bisphenol A (BPA, ICC: 0.23; 95% CI: 0.15, 0.30), mono-n-butyl phthalate (MnBP, ICC: 0.28; 95% CI: 0.15, 0.41), mono-2-ethylhexyl phthalate (MEHP, ICC: 0.32; 95% CI: 0.22, 0.43), mono(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP, ICC: 0.20; 95% CI: 0.05, 0.35) was classified as poor (ICC < 0.4), while the reliability of mono-benzyl phthalate (MBzP, ICC: 0.42; 95% CI: 0.32, 0.52), mono-ethyl phthalate (MEP, ICC: 0.49; 95% CI: 0.30, 0.69) and benzophenone-3 (BP-3, ICC: 0.64; 95% CI: 0.54, 0.75) was moderate to good (ICC ≥ 0.4). One measurement of a compound with an ICC of, for example, 0.23 can attenuate a true relative risk (RR) of 1.2 or 1.8 to an observed RR of 1.04 and 1.14, respectively.

Conclusions/Outlook

These results show that single measurements of these seven metabolites of environmental toxicants are mostly unreliable and can lead to biased results. When applying these biomarkers to assess individual exposures, repeated measurements are highly recommended.

O-09-03

THE IMPACT OF DOMESTIC TAP WATER ON BLOOD LEAD CONCENTRATION IN CHILDREN AND ADOLESCENTS – RESULTS OF THE GERMAN ENVIRONMENTAL SURVEY 2014 – 2017 (GERES V)

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Introduction

The human internal exposure to lead in Germany has decreased significantly in recent decades. However, there is no threshold for the adverse health effects of lead, with children being the most vulnerable group, while a remarkable environmental exposure still exists. As lead remains a public health concern, the German Environmental Survey (2014-2017, GerES V) has investigated if tap water remains a relevant source of exposure.

Methods

The statistical analyses are based on the results of the population-representative GerES V for Children and Adolescents. Whole blood samples from 720 participants aged 3 to 17 years and water samples from all participating households were analysed for lead concentrations with inductively coupled plasma mass spectrometry. The impact of domestic tap water on blood lead concentration (BPb) of children and adolescents was investigated by means of multiple linear regression.

Results

Lead in blood was detected in 100% of the participants with a geometric mean (GM) concentration of 9.47µg/L. GM of lead concentration in domestic tap water was 0.49 µg/L. The existing limit for lead in drinking water was met by over 99% of the households. In multiple regression analysis, lead intake via domestic tap water emerged as a potent independent predictor for BPb levels, when controlling for sociodemographic and environmental characteristics. Tap water was a significant risk factor for elevated BPb levels for half of all participants, associated with an average increase in BPb concentrations of up to 22%.

Conclusions/Outlook

Considering that there is no safe threshold for lead exposure these findings cast doubt on whether the current limit for lead in drinking water set by the Commission of the European Communities provides adequate health protection. The results from GerES V supply additional scientific evidence in support of the Commission's intention to halve the limit value from 10 µg/L to 5 µg/L in the next 15 years.

O-09-04

THE GERMAN ENVIRONMENTAL SURVEY FOR CHILDREN AND ADOLESCENTS (GERES 2014-2017): WALKING TIME TO PUBLIC GREEN SPACES BY SOCIOECONOMIC POSITION

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Introduction

Access to public green spaces (PGS) is of high importance in public health. Especially in urban areas, PGS allow i.a. for physical activity and social interaction. In the COVID-19 pandemic, urban PGS proved to be important for individual movement and social contact. As information on the walking time of children and adolescents to PGS and associations with socioeconomic position (SEP) is scarce, this aspect was investigated in the population-representative German Environmental Survey for Children and Adolescents 2014-2017 (GerES V). GerES V is the environmental module of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS Wave 2).

Methods

This study focused on 1,149 GerES V/KiGGS Wave 2 participants living in urban areas with at least 20,000 inhabitants in Germany, aged 3-17 years. Both studies comprised extensive questionnaires and interviews. Logistic regression analyses controlled for age, sex, migration background, and region of residence. SEP was defined as index of parental education, occupation and household income.

Results

For 51.5% of the participants a walking time to PGS of max. 5 min. was reported (72.8% for max. 10 min.) Generally, walking time decreases with SEP. GerES V participants with a low SEP have a higher risk (OR = 1.98, 95%-CI: 1.31-2.99) of walking more than 10 min. from home to a PGS compared to participants with a high SEP.

Conclusions/Outlook

GerES V data indicate that children and adolescents in urban areas in Germany do not have equal access to PGS, warranting further investigation of environmental health inequalities in Germany.

We thank all study participants as well as Kantar Health GmbH for carrying out the GerES V field work. Funding by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, the Federal Ministry of Education and Research, and the Federal Ministry of Health is gratefully acknowledged.

Results of this study: https://doi.org/10.3390/ijerph18052326.

VORTRÄGE

O-10 | AG SESSION 10 - ERNÄHRUNGSEPIDEMIOLOGIE

O-10-01

BIOMARKERS OF SATURATED FATTY ACID AND INCIDENCE OF TYPE 2 DIABETES: A SYSTEMATIC REVIEW AND DOSE-RESPONSE META-ANALYSIS OF PROSPECTIVE OBSERVATIONAL STUDIES

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Introduction

Evidence from studies investigating biomarkers of saturated fatty acids (SFAs) suggests that specific SFAs with different chain lengths may have different metabolic effects and impact on health, including the type 2 diabetes (T2D) development. We aimed to quantify existing evidence in a systematic review and a linear dose-response meta-analysis on the association between biomarkers of total and specific SFAs and the incidence of T2D from prospective observational studies.

Methods

The systematic literature search was performed in PubMed and Web of Science by two independent researchers up to August 2020. Summarised relative risks (SRR) and 95% confidence interval (95% CI) were estimated using random effects models. I^2 was calculated as a measure of heterogeneity.

Results

Ten articles including 28 cohorts were identified. Total SFAs were associated with an increased T2D incidence (per 3%mol: 1.17 (1.03; 1.33); I^2=0%). For the odd-chain SFAs and the very long-chain SFAs a reduced incidence of T2D was observed (SRRs (95% CIs) per 0.1%mol of total fatty acids: pentadecane acid: 0.80 (0.69; 0.93) I^2=86%; heptadecane acid: 0.75 (0.62; 0.90) I^2=90%; arachidic acid: 0.74 (0.56; 0.97) I^2=80%; behenic acid: 0.90 (0.83; 0.98) I^2=72%; lignoceric acid: 0.81 (0.70; 0.92) I^2=82%. For even-chain SFA, the incidence of T2D was increased (palmitic acid per 1%mol of total fatty acids: 1.10 (1.04; 1.16) I^2=91%. No association was found between myristic acid, stearic acid, and the T2D incidence.

Conclusions/Outlook

Our results indicate that specific SFAs are differently associated with risk of T2D. Total and even-chain SFAs were associated with increased incidence, whereas odd-chain and very long-chain SFAs were associated with decreased T2D incidence. The results suggest a reconsideration of current dietary recommendations on total SFAs as a homogeneous group. More precise recommendations on specific types and sources of SFAs are needed.

O-10-02

VEGANE ERNÄHRUNG UND KNOCHENGESUNDHEIT - ERGEBNISSE DER RBVD-QUER-SCHNITTSSTUDIE

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Introduction

Die vegane Ernährung wird in Deutschland seit einigen Jahren immer beliebter. Wissenschaftliche Erkenntnisse deuten darauf hin, dass diese Ernährungsform ein geringeres Risiko für Diabetes oder Herz-Kreislauf-Erkrankungen hat, jedoch mit einer Beeinträchtigung der Knochengesundheit verbunden sein könnte.

Methods

Die Querschnittsstudie „Risks and Benefits of a Vegan Diet“ (RBVD) wurde verwendet, um Unterschiede der Knochengesundheit zwischen Veganer (n=36) und Mischköstler (n=36) zu untersuchen, diese wurde mittels quantitativen Ultraschallmessungen (QUS) am Fersenbein erhoben. Zusätzlich wurden Unterschiede in den Konzentrationen von ernährungs- und knochenbezogenen Biomarkern untersucht.

Results

In der vorliegenden Studie wurden bei Veganern im Vergleich zu Mischköstlern niedrigere Werte in den QUS-Parametern festgestellt, z.B. in der Breitbandultraschallabschwächung (Veganer: 111.8 ± 10.7 dB/MHz, Mischköstler: 118.0 ± 10.8 dB/MHz, p=0.02). Veganer hatten niedrigere Werte der Vitamine A und B2, Lysin, Zink, Selenoprotein P, n-3-Fettsäuren, Jod/Kalzium im Urin, während die Konzentrationen von Vitamin K1, Folat und Glutamin bei Veganern im Vergleich zu Mischköstlern höher waren. Unter Anwendung einer reduzierten Rangregression konnten 12 Biomarker identifiziert, die am meisten zur Knochengesundheit beitragen: Vitamine A und B6, Aminosäuren Lysin und Leucin, Jod im Urin, Schilddrüsen-stimulierendes Hormon, Selenoprotein P, n-3-Fettsäuren, Kalzium/Magnesium im Urin, –Klotho und FGF23. Alle QUS-Parameter stiegen über die Tertile des Biomarkermuster-Scores an.

Conclusions/Outlook

Die Studie deutet auf eine schlechtere Knochengesundheit bei Veganern im Vergleich zu Mischköstlern hin. Darüber hinaus wurde eine Kombination ernährungsbezogener Biomarker abgeleitet, die möglicherweise zur Knochengesundheit beitragen. Weitere Studien sind erforderlich, um diese Ergebnisse zu bestätigen.

O-10-03

KRITISCHE NÄHRSTOFFE IN DER MITTAGSMAHLZEIT EINER VEGANEN KINDERTAGES-STÄTTE

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Introduction

Eine vegane Ernährung für Kinder wird von der DGE nicht empfohlen, da sie mit einem höheren Risiko für einen Nährstoffmangel assoziiert ist. Die Vitamine B_2, B_{12} und D sowie Jod, Zink, Eisen, Calcium und Protein gelten in der veganen Ernährung als potenziell kritisch. Gegenstand dieser Untersuchung ist die Erfassung der Nährstoffzusammensetzung der kritischen Nährstoffe in der veganen Mittagsverpflegung einer Kindertagesstätte (Kita) für die Altersgruppen 1-3 und 4-7 Jahre.

Methods

Die Zutaten der Gerichte für die Mittagsverpflegung wurden an 20 Tagen, im Zeitraum vom 13.05.19 bis 13.06.19, standardisiert durch Wiegen erfasst und die Zubereitungsart dokumentiert. Mit der Software OptiDiet wurde auf Basis des BLS (3.02) die Nährstoffzusammensetzung der angebotenen Gerichte berechnet. Die anschließende Auswertung orientierte sich an den D-A-CH-Referenzwerten für die Nährstoffzufuhr und den DGE-Qualitätsstandard für die Verpflegung in Kitas. Die Mittagsmahlzeit sollte folglich etwa 25 % des täglichen Nährstoffbedarfs ausmachen.

Results

In den Altersgruppen 1-3 Jahre und 4-7 Jahre lag die durchschnittliche Tagesversorgung bei Eisen (+73 %, +110 %), Zink (+156 %, +86 %) und Vitamin B_2 (+11 %, +18 %) über den spezifischen Referenzwerten der jeweiligen Altersgruppe. Unter den Referenzwerten lagen die Werte für Kalzium (-29 %, - 31 %), Jod (-11 %, -11 %), Protein (-11 %, -10 %), Vitamin B_{12} (-100 %) und Vitamin D (-96 %). Bei der Zubereitung der Gerichte wurde gezielt auf die Kombination von Lebensmitteln geachtet, um die Bioverfügbarkeit der Nährstoffe zu erhöhen.

Conclusions/Outlook

Der Speiseplan in der Kita und die Rezeptur der Gerichte sollten angepasst werden, um die Versorgung der Kinder mit den Nährstoffen Kalzium, Jod, Vitamin B_{12}, Vitamin D und Protein zu optimieren. Da die Kitaverpflegung aber nur einen Ausschnitt aus der täglichen Nahrungsversorgung der Kinder darstellt, ist es ebenso von Bedeutung, was die Kinder außerhalb der Kita essen, um gesundes Wachstum und Entwicklung zu ermöglichen.

O-10-04

AN UMBRELLA REVIEW OF DIETARY FACTORS AND NEURODEGENERATIVE DISORDERS

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Introduction

Neurodegenerative disorders have become important public health concerns due to aging populations worldwide. Diet has been discussed to play an important role in the prevention of neurodegenerative disorders. The aim of the umbrella review was to systematically summarize the current evidence of diet and neurodegenerative disorders.

Methods

A systematic search was conducted in PubMed, Embase and Cochrane. We included meta-analyses of prospective studies investigating the association between dietary factors (dietary patterns, food groups, beverages, nutrients, phytochemicals) and neurodegenerative disorders (cognitive decline, cognitive impairment, Alzheimer's disease, all-cause dementia, Parkinson's disease). Risk of bias of identified meta-analyses and the quality of evidence for all associations were evaluated.

Results

We identified 20 meta-analyses including 98 summary risk ratios (SRR). Moderate quality of evidence was found for the inverse associations between higher adherence to the Mediterranean diet (SRR: 0.63, 95% confidence interval (CI): 0.48, 0.82, n=4 primary studies), higher fish intake (SRR: 0.72, 95% CI: 0.59, 0.89, n=6) and Alzheimer's disease, and for tea consumption and all-cause dementia (SRR: 0.74, 95% CI: 0.63, 0.88), n=2) and Parkinson's disease (SRR per 2 cups/day: 0.69, 95% CI: 0.54, 0.87, n=5). High risk of bias was identified for all meta-analyses, mainly due to methodological concerns related to inappropriate synthesis, assessment and discussion of the risk of bias of primary studies.

Conclusions/Outlook

We provided a comprehensive overview of available evidence on dietary factors and neurodegenerative disorders and showed that the Mediterranean diet, fish and tea may be inversely associated with neurodegenerative disorders. However, risk of bias in meta-analyses was high and most associations were graded as low to very low quality of evidence. More well-conducted research, investigating also other dietary factors, is warranted.

O-10-05

DEVELOPMENT AND CHARACTERIZATION OF AN INDIVIDUAL SUSTAINABLE DIET INDEX FOR GHANAIAN ADULTS LIVING IN RURAL GHANA, URBAN GHANA AND EUROPE: THE RODAM STUDY

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Introduction

Sustainable diets are environmentally friendly and nutritionally healthful and can be operationalized by a multi-dimensional sustainable diet index (SDI). This study aimed at developing and characterizing an SDI among adults living in Ghana and among Ghanaian migrants living in Europe.

Methods

We used data of the Research on Obesity and Diabetes among African Migrants (RODAM) study (N=3619). Dietary intake was assessed by the Ghana-Food Propensity Questionnaire. The SDI comprised a nutrition sub-index (Diet Quality Index-International, DQI-I), and an environmental sub-index (reciprocal of CO_2-equivalents from site-specific life-cycle assessments). Partial Spearman correlations and multiple-adjusted linear regression models were calculated to examine the relationships of demographic, socio-economic, lifestyle and migration-related factors with SDI adherence.

Results

In the RODAM study population (mean age: 46.1 ± 11.1 years; male sex: 36.6%), mean SDI was 125.2 ± 15.5; mean DQI-I was 56.1 ± 6.9, and mean environmental score was 69.1 ± 14.9. The consumption of animal products had the strongest inverse correlation with the SDI; vegetables, cereals and fruits showed positive correlations. Participants in urban Ghana (120.3 ± 17.5; p <0.0001), Amsterdam (126.5 ± 11.7; p <0.0001) and Berlin (123.6 ± 12.9; p <0.0001) showed lower SDI adherence than individuals in rural Ghana (129.6 ± 15.1), while SDI adherence was higher in London (132.6 ± 11.7; p=0.001). These SDI differences strengthened after adjustment for age, sex and energy intake, but remained after further adjustment for lifestyle and socio-economic factors. Longer time since migration pronounced the SDI differences across European sites.

Conclusions/Outlook

In this study population, diet quality was moderate and environmental footprints were low. Living in urban Ghana may adversely affect the sustainability of dietary habits. The relationship between living environment and dietary sustainability in Europe depends on migration-related factors.

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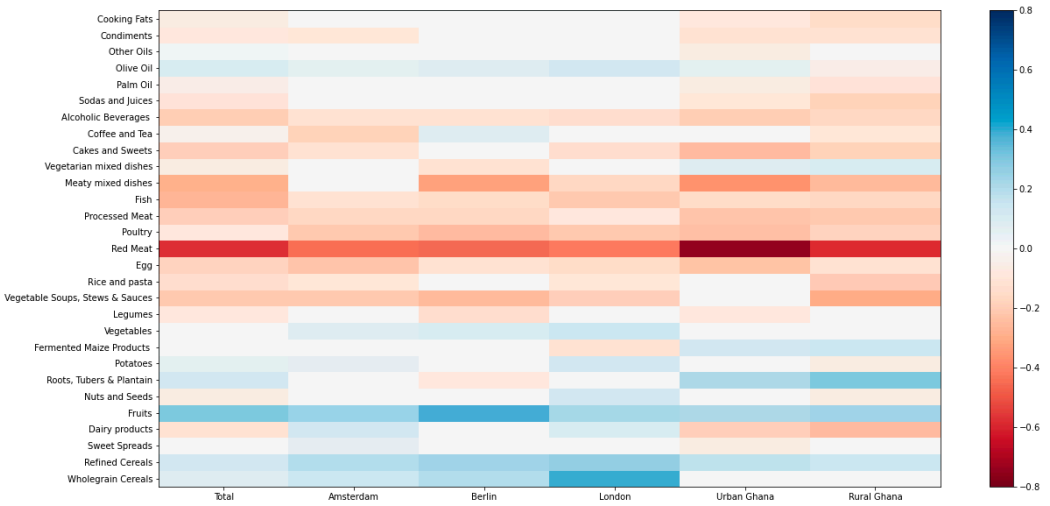

Partial Spearman correlations for individual food group intakes (g/d) with Sustainable Diet Index
Spearman correlation coefficients were adjusted for sex, age (years) and energy intake (kcal/d). Red indicates inverse relationships (negative r), white indicates neutral relationships (r = 0), and blue indicates direct relationships (positive r) between food group intake (g/d) and sustainability of the diet as defined by SDI.

Model	Rural Ghana	Differences in mean SDI (95% confidence interval)												R^2
		Urban Ghana			Amsterdam			Berlin			London			
		ß	95% CI	p	ß	95% CI	p	ß	95% CI	p	ß	95% CI	p	
Crude	0.0	-9.1	-10.4; -7.8	<.0001	-3.0	-4.5; -1.5	<.0001	-5.9	-7.7; -4.2	<.0001	3.0	1.2; 4.9	0.001	0.08
M1	0.0	-12.0	-13.1; -10.9	<.0001	-5.2	-6.5; -3.9	<.0001	-3.0	-4.5; -1.5	<.0001	4.9	3.3; 6.5	<.0001	0.34
M2	0.0	-12.1	-13.2; -10.9	<.0001	-5.1	-6.4; -3.8	<.0001	-2.9	-4.4; -1.3	0.0002	4.7	3.1; 6.3	<.0001	0.34
M3	0.0	-11.9	-13.1; -10.8	<.0001	-4.8	-6.3; -3.3	<.0001	-2.6	-4.4; -0.9	0.003	4.9	3.0; 6.7	<.0001	0.34

Differences in mean Sustainable Diet Index (SDI) across RODAM study locations
Differences in mean SDI (95% confidence intervals), p-values, and R^2 were calculated by linear regression.

Model 1: adjusted for energy intake (kcal/d), age (years) and sex
Model 2: Model 1 + smoking status (3 categories), physical activity (MET-min/week)
Model 3: Model 2 + education (5 categories), employment status (8 categories), number of household members, relationship status (5 categories)

O-10-06

LONGITUDINAL CHANGES OF DIETARY PATTERNS AND THEIR ASSOCIATION WITH CHRONIC DISEASE RISK IN THE EPIC-POTSDAM STUDY

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Introduction

Dietary patterns (DP) were investigated with chronic disease risk in EPIC-Potsdam considering baseline dietary information: Two DPs describing the Mediterranean diet were significantly associated with reduced type 2 diabetes (T2D) incidence, while the Nordic diet as another regional example was not significantly associated with any of the investigated disease outcomes. However, potential changes in DP adherence over time and their respective associations with chronic diseases have not been addressed so far.

Methods

Adherence to the Mediterranean Diet Pyramid index (MedPyr) and a newly developed Evaluation score (Eva) was investigated in participants of the EPIC-Potsdam study (n=23,539) at baseline and follow-up 3 (FUP3). Changes in adherence were presented in three categories of percentual change (≥5% decrease, stable, ≥5% increase). Associations with incidence of T2D, myocardial infarction (MI) and stroke until follow-up 5 were investigated with Cox Proportional Hazards Regression Models, adjusted for potential confounders, according to the change categories.

Results

From baseline to FUP3, more than 60% of the participants increased adherence to both DPs by 5% or more. Comparing this change category to the stable category for MedPyr, the incidence was decreased for T2D (HR=0.73; 95%-CI: 0.58–0.92), but not for MI and stroke. In sex-stratified analyses, the significant association remained in women. An increase in adherence of Eva was not associated with the three outcomes. Exclusion of implausible energy intake or developed hypertension did not change the results in sensitivity analyses.

Conclusions/Outlook

The analysis on changes in DPs added knowledge that a change in dietary behavior towards an increase in adherence to the Mediterranean diet was associated with a considerable risk reduction of 27% for T2D, compared to those participants, who did not change their dietary behavior.

VORTRÄGE

O-11 | AG SESSION 11 - ERHEBUNG UND NUTZUNG VON SEKUNDÄRDATEN (AGENS)

O-11-01

CLASSIFICATION ALGORITHM OF DIABETES TYPES TO ESTIMATE THE PREVALENCE OF TYPE 1 AND TYPE 2 DIABETES MELLITUS BASED ON ROUTINE DATA

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Introduction

Diabetes mellitus defines a group of metabolic disorders. The most common types are type 2 diabetes (T2D) caused by genetic and lifestyle factors and type 1 diabetes (T1D) resulting from an autoimmune disease. Analyzing routine data, which is increasingly used in epidemiology, the distinction of T1D and T2D remains challenging. In this study, we present an algorithm for classification and prevalence estimation of diabetes types.

Methods

Data basis were persons either born in 2010-17 or already insured in 2010 and continuously covered by BARMER until 2018. For the analysis an age and sex stratified random sample with the size of 1% of the German population was drawn. Diabetes was defined by ICD codes E10 to E14 (including subcategories). While in the inpatient setting, one diagnosis in the reporting year 2018 was sufficient, in the outpatient setting, a confirmed diagnosis in two quarters or in one quarter combined with an antidiabetic drug (ATC code A10) was required. In a first step, persons with diabetes were classified based on the specific ICD code and the prescription of insulin and/or oral antidiabetics. Secondly, unclear or conflicting constellation (e.g. E10 and E11) were allocated considering age, frequency of specific ICD codes and type of diagnosis in 2017. In a sensitivity analysis, the participation in a disease management program for T1D or T2D was analyzed.

Results

The prevalence of documented diabetes was 8.7% in 2018. According to the algorithm, the majority was classified as T2D (92.6%), followed by T1D (5.5%), other specific diabetes types (0.43%) and unknown diabetes type (1.5%). Therefore, the prevalence in 2018 was estimated at 0.48% for T1D and 8.1% for T2D.

Conclusions/Outlook

With only few variables including diagnosis, medication and age, the majority of cases in routine date could be classified to T1D or T2D. This allows for future analysis of important indicators of the diabetes surveillance such as prevalence of comorbidities or mortality rate differentiated by diabetes type.

Acknowledgement: The authors would like to thank the BARMER statutory health insurance for the supply of the data of the present study.

O-11-02

POTENTIAL FOR PREVENTION – YEARS OF LIFE LOST AT DIFFERENT LIFE STAGES. RESULTS FROM THE GERMAN BURDEN OF DISEASE STUDY BURDEN 2020

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Introduction

Within the scope of the BURDEN 2020 project carried out by Robert Koch Institute, the German Environmental Agency, and the Scientific Institute of AOK burden of disease estimates for Germany at the national and regional level become available for the first time. Focussing on Years of Life Lost to death (YLL) and comparing age cohorts we want to illustrate the potential for prevention that can be derived from the metrics.

Methods

YLL for specific causes of death are calculated by combining the number of deaths and the residual life expectancy at the time of death. For the analyses recent data for Germany (year 2017) and the maximum German life expectancy across the federal states are used. YLL are estimated by cause, age, sex, and spatial planning regions.

Results

Causes of death (CoD) vary largely across the life course. Self-harm accounts for almost one third of YLL between the age of 15 to 29, especially for men, followed by transport injuries as the second leading CoD in this age group. For the middle-aged (40 to 69) neoplasms are the most important CoD causing almost half of all YLL in some age groups. For the elderly (above age 80) cardiovascular disease are most relevant CoD. Additionally, YLL through neurological disorders, especially dementias, increase with age. Further emphasis will be put on presenting regional variations.

Conclusions/Outlook

YLL as a burden of disease metric, allow for a comprehensive analysis of the mortality patterns in Germany. The ranking of CoD varies substantially when using YLL compared to numbers of deaths. Preventive measures should especially target diseases that cause large amounts of YLL. All data will be made available online and hence can be a of great use for research and public health authorities.

O-11-03

PHIRI – TOWARDS A EUROPEAN RESEARCH INFRASTRUCTURE ON POPULATION HEALTH INFORMATION

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Introduction

The COVID-19 pandemic has clearly shown that a structured European mechanism to organize and share accurate information on COVID-19 between countries is urgently needed. In November 2020, the project *PHIRI* (Population Health Information Research Infrastructure) was launched to tackle this challenge. *PHIRI* includes 41 partners across 30 countries over a period of 36 months. It aims to implement a research infrastructure to generate the best available evidence for research on health and well-being of populations impacted by COVID-19.

Methods

PHIRI builds on the BRIDGE Health and the Joint Action on Health Information (InfAct) projects. It comprises 4 substantive, 2 structural and 3 central Work Packages (WPs) (Management, Communication, Engagement). The focuses of the substantive WPs include: research methodologies to assess the impact of COVID-19, research use cases measuring the impact of COVID-19 on population health, a sustainable infrastructure to support rapid exchange of information and expertise, insights in possible future health impacts of the COVID-19 outbreak by foresight and modelling scenarios. The emphasis of the structural WPs is laid on building a Health Information Portal to facilitate access to health and health care data for COVID-19 as well as creating a federated research infrastructure that overcomes data reuse and data sharing hindrances.

Results

PHIRI will allow to facilitate multidisciplinary, open, interconnected and data-driven research across Europe through the identification, access, assessment and reuse of population health and non-health data to underpin public health policy decisions. An integrated and sustainable EU-wide population Health Information System (HIS) will facilitate better harmonized response to the COVID-19 pandemic.

Conclusions/Outlook

PHIRI is a practical use case and lays the foundation for ultimately developing a Distributed Infrastructure on Population Health (DIPoH) to be used to overcome future crisis and ensuring the sustainability of the project.

O-11-04

DEMENTIA RISK PREDICTION MODELS FROM GERMAN CLAIMS DATA USING METHODS OF STATISTICAL LEARNING

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Introduction

An increasing number of dementia risk prediction models have been developed and the most common methodologies were statistical learning (SL) and traditional regression methods. Despite the increasing availability of routinely collected health data in Germany, dementia risk predictions using these data are still missing.
We examined whether German claims data are suitable for dementia risk prediction, and whether SL methods outperform classical regression. We also explored which features are important to predict the risk of dementia.

Methods

We used a longitudinal sample of health claims data from the largest German health insurance "Allgemeine Ortskrankenkassen". Predictors were: 27 major age-related diagnoses (ICD-10), 230 medical prescriptions (ATC-codes) and 87 surgery codes (OPS) as well as age and sex. The study cohort aged 65+ comprised 117,895 persons free of dementia at baseline with up to 10 years of follow-up. To predict the risk of dementia we used binomial regression, gradient boosting machines (GBM) and the random forest (RF) algorithm. The most important features were identified by variable importance measures.

Results

The discriminative power was moderate for binomial regression (C-statistic=0.71; 95%CI=0.70-0.72) and GBM (C-statistic=0.70; 95% CI=0.69-0.71) and poor for RF (C-statistic=0.63). The GBM model was better calibrated than the binomial regression model. The most important predictors were age, antipsychotic medications and cerebrovascular disease. Less established predictors were some specific antibacterial medical prescriptions (ATC=J01F).

Conclusions/Outlook

We developed dementia risk prediction models from German health claims data with acceptable accuracy which may be useful to implement decision support tools for early dementia screening. While SL methods did not outperform regression models, they provide variable importance measures which may be relevant when identifying new features or pathways affecting the dementia risk.

O-11-05

STATUS DES FORSCHUNGSDATENZENTRUMS AM BFARM – NEUERUNGEN IM DATENTRANSPARENZ-VERFAHREN

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Introduction

Die von den aktuell ca. 74 Millionen gesetzlich Krankenversicherten gesammelten Abrechnungsdaten wurden seit 2014 bestimmten Nutzergruppen auf Antrag vom Deutschen Institut für Medizinische Dokumentation und Information (DIMDI) für Analysezwecke zur Verfügung gestellt. In Zukunft übernimmt diese Aufgabe das Forschungsdatenzentrum (FDZ) am Bundesinstitut für Arzneimittel und Medizinprodukte (BfArM). Die Novellierung der Datentransparenzverordnung (DaTraV) und der §§ 303a bis 303f des Fünften Buches Sozialgesetzbuch eröffnen neue Möglichkeiten zur Nutzung dieser Abrechnungsdaten.

Methods

Die Übermittlung der Daten an das FDZ wird von der Durchführung des Risikostrukturausgleichs getrennt, wodurch die Erschließung eines aktuelleren und umfangreicheren Datensatzes für detailliertere longitudinale Studien möglich wird. Es werden jeweils ab Dezember die Daten des Vorjahres an das FDZ übermittelt. So wird beispielsweise ab Dezember 2023 ein 14 Jahre umfassender longitudinaler Datensatz zur Verfügung stehen. Um unter Berücksichtigung eines angemessenen Datenschutzes die Nutzbarkeit der pseudonymisierten Daten zu verbessern, wird am FDZ derzeit eine neue IT-Infrastruktur geschaffen.

Results

Ein elektronisches Antragsverfahren soll die Bearbeitung von Anträgen beschleunigen und virtuelle Analyseräume sollen für die Ausarbeitung von Analysen bereitgestellt werden. Dabei wird der gesamte Analyseprozess bis hin zu aggregierten, publikationsreifen Ergebnissen begleitet. Darüber hinaus werden in einem öffentlichen Antragsregister die Vorhabensziele der beantragten Forschungsprojekte mit DaTraV-Daten aufgeführt.

Conclusions/Outlook

Durch einen aktuelleren und umfangreicheren Datensatz sowie der Möglichkeit mit diesem besser iterativ forschen zu können soll die Nutzbarkeit der Abrechnungsdaten für die Forschung verbessert werden. Eine qualitative und quantitative Steigerung von Forschungsprojekten wird damit angestrebt.

O-11-06

BEHANDLUNGSFADE IN GKV-ROUTINEDATEN AM BEISPIEL DER INANSPRUCHNAHME VON LEISTUNGEN ZUR GEBÄRMUTTERHALSKREBSFRÜHERKENNUNG

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Introduction

In Deutschland wird seit dem 01.01.2020 ein neu organisiertes Gebärmutterhalskrebsscreening-Programm umgesetzt, das ein Einladungsverfahren für Frauen im Alter von 20-65 J. und zusätzlich zum bisherigen PAP-Abstrich einen HPV-Test für alle Frauen ab 35 J. beinhaltet. Dadurch sollen anspruchsberechtigte Frauen besser erreicht und die Qualität und Wirksamkeit der Früherkennung weiter verbessert werden.

Methods

Um mögliche Auswirkungen der Richtlinienänderung beurteilen zu können, wurde der aktuelle Status quo unter adäquater Berücksichtigung der Nicht-Teilnehmerinnen untersucht. Datengrundlage sind sektorenübergreifende GKV-Routinedaten von 10 Millionen TK-Versicherten im Zeitraum 2015-2018. Analysiert wurden neben relevanten Prozess-Parametern (spezifische EBM-GOP, ICD-Diagnosen und OPS-Codes) auch sozioökonomische Aspekte.

Results

Die Teilnahmerate an der Früherkennung mittels PAP-Abstrich bei Frauen ≥ 20 J. mit durchgängigem Versicherungsverhältnis beträgt im Mittel 78,1%. Dabei liegt die jährliche Inanspruchnahme (4x innerhalb von vier Jahren) bei 26,4% (0x 21,9%, 1x 12,6%,2x 15,6%, 3x 21,7% und >4x 1,8%), wobei der Anteil in den ostdeutschen Regionen wesentlich höher liegt. Bei Subgruppenanalysen anhand des neunstelligen Tätigkeitsschlüssels zeigt sich mit Zunahme des Bildungsniveaus eine Erhöhung der Teilnahmerate. Nicht-Teilnehmerinnen sind im Mittel 12,4 Jahre älter und haben weniger Kontakte zu Gynäkologen (10,9% vs. 99,8%) und Hausärzten (86,1% vs. 94,9%).

Conclusions/Outlook

Mit GKV-Routinedaten lassen sich Art und Umfang von Screening-Inanspruchnahmen unter adäquater Berücksichtigung der Nicht-Teilnehmerinnen detailliert messen sowie nach Region, Alter und Bildung ausdifferenzieren. Da die Nicht-Teilnehmerinnen die Hälfte aller Gebärmutterhalskrebsfälle ausmachen, sollten Ansätze zur Erhöhung der Teilnahmerate vor allem auf diese Frauen fokussieren.

VORTRÄGE

O-12 | AG SESSION 12 - SOZIALEPIDEMIOLOGIE

O-12-01

SMOKING AND ALCOHOL CONSUMPTION: BEHAVIOURAL CHANGES DUE TO PANDEMIC-RELATED RESTRICTIONS

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Introduction

Containment measures, as implemented during the COVID-19 pandemic, potentially impose psychological strains and may lead to adverse changes in health behaviours. An increase in psychological distress may result in an increase in tobacco and/or alcohol consumption. However, pandemic measures could also be used as an opportunity to change health behaviours in a positive way. The aim of the analysis was to describe behavioural changes.

Methods

CORONA-MONITORING *local* is a seroepidemiological observation study, which conducted cross-sectional examinations in German municipalities with high COVID-19-incidences. The study also examines possible changes in tobacco and alcohol use. We used data from Kupferzell, where 2,203 randomly selected residents participated. Information on smoking status and alcohol consumption, as well as changes in the respective behaviours were assessed. Descriptive statistics and multinomial regression were used to describe consumption patterns and changes.

Results

A majority of those with a positive smoking history did not change their behavior (70,8%), 13,2% stopped smoking, 9,2% smoked less and 6,6% smoked more. Age (>65 years) was significantly associated with tobacco cessation (OR 4.2; 95% CI:1,79-9,83; p<0.01), while female gender (OR 2.68; 95% CI:1,34-5,37; p<0.05) and the presence of a chronic disease (OR 2.36; 95% CI:1,23-4,98; p<0.05) correlated with an increase in tobacco use. The majority of those who drink moderate amounts (1-2 drinks/day) have not changed their consumption. However, 33,4% of those who drink risky amounts (≥ 5 drinks/day) reported an increased alcohol consumption.

Conclusions/Outlook

Risky health behaviour at the onset of the COVID-19 pandemic, especially among women, people with chronic diseases and those with risky alcohol consumption, may have increased over time and needs to be monitored closely. In addition, determinants for changes need to be identified.

O-12-02

SOZIOÖKONOMISCHE DEPRIVATION, SARS-COV-2-INZIDENZ UND COVID-19-MORTALITÄT IN DEUTSCHLAND: ERGEBNISSE DER BUNDESWEITEN MELDEDATEN

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Introduction

Internationale Befunde deuten auf ein erhöhtes Risiko für SARS-CoV-2-Infektionen und schwere COVID-19-Verläufe in sozioökonomisch deprivierten Bevölkerungsgruppen hin. Dieser Beitrag analysiert über den Verlauf der COVID-19-Epidemie in Deutschland, wie sich die Häufigkeiten von SARS-CoV-2-Infektionen und COVID-19-Todesfällen nach sozioökonomischer Deprivation unterscheiden.

Methods

Auf Basis der gesetzlichen Meldedaten zu laborbestätigten Infektionsfällen in Deutschland werden die Inzidenz von SARS-CoV-2-Infektionen und die COVID-19-bezogene Mortalität pro 100.000 Personen altersstandardisiert berechnet. Dafür werden die Meldedaten mit dem German Index of Socioeconomic Deprivation (GISD) verknüpft, der das Ausmaß sozioökonomischer Deprivation in den 401 Landkreisen und kreisfreien Städten anhand von Bildungs-, Beschäftigungs- und Einkommensindikatoren misst. Die Inzidenz und Mortalität werden jeweils stratifiziert nach Deprivations-Quintilen berechnet.

Results

Nachdem die Inzidenz in der ersten und zu Beginn der zweiten Infektionswelle zunächst in weniger deprivierten Kreisen am höchsten lag, verlagerte sich das Infektionsgeschehen im Fortlauf der zweiten Welle zunehmend in stark deprivierte Kreise, die schließlich die höchste Inzidenz aufwiesen. Die Mortalität stieg während der zweiten Welle in stark deprivierten Kreisen am schnellsten an, wo sie ab etwa Mitte der zweiten Welle insgesamt deutlich höher lag als in gering deprivierten Kreisen.

Conclusions/Outlook

Die Ergebnisse weisen auf regionale soziale Unterschiede im COVID-19-Geschehen hin, die zu einer Verschärfung der gesundheitlichen Ungleichheit beitragen könnten. Aufgrund des ökologischen Studiendesigns können keine Aussagen über Kausalität getroffen und ein ökologischer Fehlschluss nicht ausgeschlossen werden. Deprivierte Bevölkerungsgruppen sollten im Infektions- und Gesundheitsschutz verstärkt berücksichtigt werden.

O-12-03

SOZIOÖKONOMISCHER STATUS UND SARS-COV-2-INFEKTIONEN IN DEUTSCHLAND: ERGEBNISSE DER SEROEPIDEMIOLOGISCHEN STUDIE CORONA-MONITORING BUNDESWEIT (RKI-SOEP-STUDIE)

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Introduction

Verschiedene internationale Studien deuten auf ein erhöhtes Risiko für SARS-CoV-2-Infektionen in sozioökonomisch benachteiligten Bevölkerungsgruppen hin. Die bisherige Evidenz stammt überwiegend aus ökologischen Studien auf regionaler Ebene. Dieser Beitrag analysiert auf Basis von Individualdaten, wie SARS-CoV-2-Infektionen in Deutschland mit Merkmalen des sozioökonomischen Status assoziiert sind.

Methods

In der Studie CORONA-MONITORING bundesweit (RKI-SOEP-Studie) wurden von Oktober 2020 bis Februar 2021 Bioproben und Befragungsdaten in einer deutschlandweiten Bevölkerungsstichprobe des Sozio-oekonomischen Panels (SOEP) erhoben. Die Teilnehmenden (n=15.122, Alter=18+, Response: 48%) erhielten Materialien zur Selbstabnahme einer Trockenblutprobe per Finger-Prick und eines Mund-Nase-Abstrichs. Die Analyse der eingegangenen Proben erfolgte mittels ELISA auf SARS-CoV-2-IgG-Antikörper und PCR auf SARS-CoV-2-RNA. Anhand cluster-robuster logistischer Regressionen wurden altersadjustierte Odds Ratios (OR) nach Bildung und Einkommen berechnet.

Results

Es werden Ergebnisse zur Prävalenz einer serologisch oder PCR-bestätigten SARS-CoV-2-Infektion vorgestellt. Erste Analysen zeigen, dass das Infektionsrisiko in der niedrigen Bildungsgruppe doppelt so hoch lag wie in der hohen Bildungsgruppe (OR=1,98; 95%-KI 1,13–3,49). Unentdeckte Infektionen (sero-/PCR-positiv ohne selbstberichteten positiven PCR-Test) waren ebenfalls bei niedriger Bildung häufiger (OR=2,15; 95%-KI 0,93–4,94). Unterschiede nach Einkommen fielen geringer aus.

Conclusions/Outlook

Dies ist die erste bundesweite Analyse soziökonomischer Unterschiede im SARS-CoV-2-Infektionsgeschehen auf Basis seroepidemiologischer Individualdaten. Die Ergebnisse weisen auf ein erhöhtes Infektionsrisiko in sozioökonomisch benachteiligten Gruppen hin. Die Lebens- und Arbeitsbedingungen sollten im Infektionsschutz und bei Informationskampagnen noch stärker adressiert werden, um die gesundheitliche Chancengerechtigkeit in der Pandemie und darüber hinaus zu fördern.

O-12-04

FRAUENGESUNDHEIT IN DEUTSCHLAND - ERGEBNISSE AUS DEM NEUEN BERICHT DER GESUNDHEITSBERICHTERSTATTUNG AM ROBERT KOCH-INSTITUT

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Introduction

In Deutschland leben mehr als 35 Millionen erwachsene Frauen. Ihr Gesundheitszustand, Gesundheitsverhalten und ihre Gesundheitsversorgung sind Themen eines neuen umfassenden Berichts der Gesundheitsberichterstattung am RKI.

Methods

Der Bericht nutzt eine breite Datengrundlage und zeigt Unterschiede und Gemeinsamkeiten in der Gesundheit von Frauen und Männern („differences between") sowie innerhalb der Gruppe der Frauen („differences within") auf. Er besteht aus einem Überblicksteil und Fokuskapiteln zur Gesundheit im Lebensverlauf, zu bestimmten Gruppen von Frauen (z. B. Frauen mit Behinderungen) und speziellen Gesundheitsthemen (z. B. sexueller und reproduktiver Gesundheit).

Results

Die mittlere Lebenserwartung von Frauen steigt seit vielen Jahrzehnten an. Zwei Drittel der Frauen bewerten ihre Gesundheit als gut oder sehr gut. Die häufigste Todesursache bei Frauen sind Herz-Kreislauf-Erkrankungen, auf die rund 40 % aller Todesfälle zurückzuführen sind. Trotzdem gelten sie weiterhin als eher „männliche" Erkrankungen, Frauen unterschätzen häufig ihr Erkrankungsrisiko. Frauen verhalten sich oftmals gesundheitsbewusster als Männer, z. B. greifen sie häufiger zu gesunden Lebensmitteln wie Obst und Gemüse. Frauen nutzen in höherem Maße Angebote der Prävention, Gesundheitsförderung sowie der Gesundheitsversorgung. Pflege ist in doppeltem Sinne weiblich: Zwei Drittel der Pflegebedürftigen sind Frauen und vor allem Frauen sind für die Pflege anderer zuständig.

Conclusions/Outlook

Insgesamt sind die Gesundheit und Versorgung für Frauen in Deutschland auf einem hohen Niveau. Die Chancen auf ein gesundes Leben sind jedoch ungleich verteilt; Geschlecht, Alter, Bildung, Berufstätigkeit, Einkommen, Familienform, Migrationshintergrund und viele weitere Aspekte spielen eine Rolle. Der Bericht liefert aktuelle Daten und Informationen für Politik, Wissenschaft und Praxis und gibt Impulse für eine geschlechtergerechte Gesundheitsförderung, Prävention und Versorgung.

O-12-05

OPERATIONALISATION OF SEX/GENDER DIVERSITY IN QUANTITATIVE HEALTH RESEARCH: A CRITICAL REVIEW OF CURRENT INSTRUMENTS

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Introduction

In recent years, researchers are becoming more aware of the need to integrate sex/gender and their complexity into health-related research. Regardless of the abundance of theoretical underpinnings, the practical operationalisation of sex/gender still faces challenges. The interdisciplinary research project DIVERGesTOOL funded by the German Federal Ministery of Health aims at closing this gap through the development of a toolbox for the operationalisation of sex/gender diversity in quantitative health research.

Methods

First, we conducted a critical review of articles published between 2000 and 2020 to identify tools that are currently used to measure sex/gender diversity in health-related research. The initial Medline, Scopus, and Web of Science search returned 9935 matches of which 168 relevant studies were included. Within these, we identified 77 different tools and assessed them qualitatively from the perspectives of public health, medicine and gender studies.

Results

Within the last 20 years, the number and variety of tools increased over time. The majority was developed in the field of psychology and focuses on social aspects (gender), while the consideration of somatic aspects (sex) or a combination of both is less common. The tools identified were often developed in an American or Canadian context and adapted to their population and culture only.

Conclusions/Outlook

Overall, most of the tools lag behind the current methodological and theoretical state of the art of gender studies and sex- and gender-sensitive medicine. Approaches that consider sex/gender in its variance, fluidity and intersectionality are still missing. Based on the review's outcomes, results from current research and the practical expertise from future users the next step of DIVERGesTOOL project is to develop a basic format for the operationalisation of gender diversity.

O-12-06

SEXUAL HEALTH SERVICE USE: A COMPARISON OF FIRST AND SECOND GENERATION MIGRANTS WITH THE NATIVE GERMAN POPULATION IN THE GERMAN HEALTH AND SEXUALITY SURVEY (GESID)

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Introduction

Migration background is an important predisposing characteristic of health service use (HSU). The knowledge about the HSU of migrants in the context of sexual health is limited.

Methods

In a population-representative sample of 4,955 women and men from all German federal states, we examined the HSU of first-generation and second-generation migrants compared to persons without a migration background. Outcomes of sexual HSU ranged from primary and secondary prevention measures such as HPV-vaccination and Chlamydia-test to consultations due to sexual problems in general and in the relationship, contraceptives, and HIV or other STI´s.

Results

Generally, first-generation migrants used sexual health services less often than persons without a migration background. Notably, first-generation migrant women had lower odds of being vaccinated against HPV (OR=0.24; 95% CI: 0.14; 0.38), of a lifetime use of both a Chlamydia-test (OR=0.21; 95% CI: 0.11; 0.39), and a consultation due to contraceptives (OR=0.40; 95% CI: 0.28; 0.58). Second-generation migrants resembled more closely the non-migrant population, only showing differences regarding the use of the HPV-vaccination (OR=0.48; 95% CI: 0.30; 0.76).

Conclusions/Outlook

First-generation migrants showed remarkable differences in the HSU compared to the native population. Therefore, this group should be targeted with the aim of a more equitable HSU that is mainly based on the needs for health services and not restricted due to formal or informal barriers. Both migration generations had lower odds of being vaccinated against HPV indicating the need for a better education regarding the benefits and risks of vaccinations in general.

VORTRÄGE

O-13 | AG SESSION 13 - PÄDIATRISCHE EPIDEMIOLOGIE

O-13-01

LOCKDOWN STRATEGIES FOR SARS-COV-2 PANDEMIC CONTAINMENT REDUCED INCIDENCE OF RESPIRATORY TRACT INFECTIONS IN YOUNG CHILDREN– FINDINGS FROM THE BIRTH COHORT STUDY LOEWENKIDS

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Introduction

Acute respiratory tract infections (ARI) are common in young children due to an immature immune system and close contact to other persons. Since March 2020, we have been experiencing public health measures controlling the spread of SARS-CoV-2. They result in a varying degree of contact reduction among people in daily life, reflected in lower incidence of ARI among adults in GrippeWeb. We investigated the number of children's ARI before and during different stages of lockdown.

Methods

We investigated and compared the incidence of self-reported ARI in 3-5 years old participants in the LoewenKIDS study between reference years 2018/19 and 2020/21. Participants` parents were provided with a symptom diary and reported the children's symptoms on a daily basis. ARI were defined based on symptoms such as fever, wheezing, runny/congested nose, chills, sore throat, loss of appetite, increased need to sleep and increased attachment.

Results

The German lockdown measures starting in March 2020 reduced the incidence of ARI in 3-5 years old participants immediately (Fig. 1). Whereas 34% and 47% of children acquired at least one ARI in April and May of the reference years 2018/19, it was 6% and 11% of children in 2020 respectively. During the summer 2020, ARI levels were similar to 2018/19. In autumn 2020 gradual decrease occurred, with very low numbers during the winter 2020/21 compared to 2018/19.

Conclusions/Outlook

The strong reduction of self-reported ARI in 3-5 years old children paralleled changes observed among adults and corresponded to the lockdown periods of the COVID-19 pandemic.

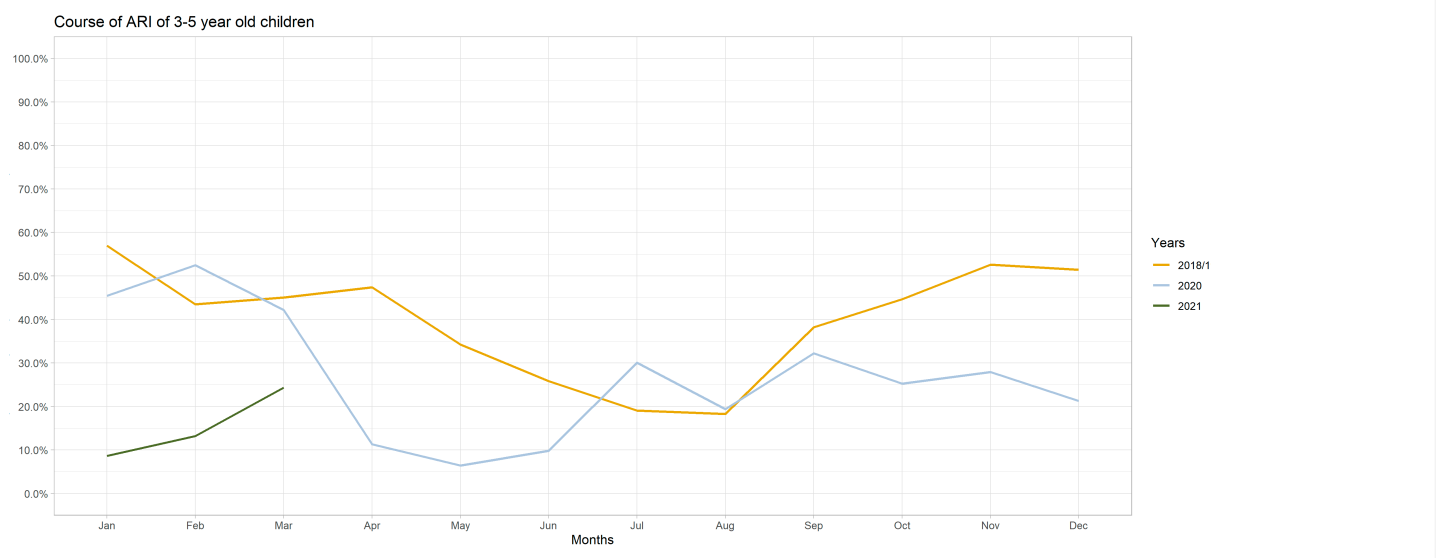

Figure 1

O-13-02

SYMPTOM BURDEN AND FREQUENCY OF RESPIRATORY INFECTION EPISODES IN THE FIRST TWO YEARS OF LIFE IN HEALTHY INFANTS IN GERMANY.

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Introduction

Respiratory infections are the most common childhood illness worldwide and cause a high morbidity and high socioeconomic burden. The frequency of acute respiratory infections (ARIs) reported in studies among children varies widely, often depending on the tool used for assessment. Symptom diaries are a powerful tool to counteract possible under-reporting particularly of milder diseases and offer the possibility to assess the full burden of respiratory infections.

We used data from symptom diaries to describe the frequency, burden of symptoms, and potential risk factors of ARIs in the first two years of life in the German prospective population-based birth cohort study LoewenKIDS.

Methods

Parents kept a daily diary on respiratory symptoms of the children and answered structured questionnaires yearly. Primary analyses involved calculating frequencies for ARIs, days with symptoms, and the duration of ARI episodes, which occurred in the first two years of life. Analysis to identify possible risk factors for a higher number of infections was performed using logistic and Poisson regression.

Results

782 newborns enrolled in the study between November 2014 and February 2018. Participants with nearly complete diary data in the first two years of life (98% of days of life with records, n=288) were included in this analysis. On average, 13.6 ARI episodes (IQR: 10-17, SD: 5.2) were recorded with an average duration of 11 days (SD: 5.8, median: 9.7, IQR: 7-14) and with a marked increase in frequency from the seventh month of life. The median age at first ARI episode was 91 days (IQR: 57-128, mean: 107, SD: 84.5) after birth. Birth in summer, childcare attendance, having older siblings and time period in non-summer season, were associated with an increased risk for higher frequency of ARI.

Conclusions/Outlook

This study provides detailed insight into the symptom burden of ARIs in German healthy infants and in the interactions between respiratory infections and risk factors.

O-13-03

IMPACT OF A PEDIATRIC PRIMARY CARE HEALTH-COACHING PROGRAM ON CHANGES IN HEALTH RELATED QUALITY OF LIFE IN CHILDREN AND ADOLESCENTS WITH MENTAL HEALTH PROBLEMS: RESULTS OF THE PRIMA-QUO COHORT STUDY.

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Introduction

Mental health problems (MHP) of children and adolescents (CA) can have a considerable negative impact on health related quality of life (HRQoL) of CA and their families. Strengthening primary care pediatricians' expertise in diagnosis and management of MHP has been shown to be beneficial in this regard. We analysed the effects of a structured pediatric training and compensation program (Health Coaching, HC) on HRQoL of CA with MHP.

Methods

The PrimA-QuO cohort study collected data from CA enrolled into the HC, and a control group without HC via an online questionnaire. CA were included if they had been diagnosed with developmental disorder of speech and language, non-organic enuresis, head and abdominal pain, somatoform, and conduct disorder. HRQoL was measured with the KINDL^{R}, using the proxy and the child-reported version. The KINDL total score and KINDL subscale scores (*physical well-being, emotional well-being, self-esteem, family, friends, and everyday functioning (school or nursery))* were used as continuous outcomes. We used linear mixed effects models to analyse the effects of the intervention on children´s HRQoL over one-year time, while considering potential sociodemographic and health-related confounders.

Results

A total of 1.053 CA (mean age 6.9, 40% female, 30% intervention group) were included. On average, the KINDL total score was 78.7 (SD 11.8) points at baseline and 78.3 (SD 11.1) points at follow-up. After adjusting for sociodemographic and health-related variables enrolment into HC was not significantly associated with change in CA's HRQoL total score. HC significantly increased HRQoL on the KINDL subscale *family* (1.96 points, 95% CI [0.01; 3.91]). Higher age was significantly associated with lower HRQoL (-0.71 points; 95% CI [-0.91; -0.51]) at baseline.

Conclusions/Outlook

In conclusion, HC seems to have a small positive effect on a subscale. Further investigation are needed for a more profound understanding if and how the primary care HC program benefits CA with MHP.

O-13-04

TRACKING OF WEIGHT STATUS AMONG 2- TO 17-YEAR-OLD CHILDREN AND ADOLESCENTS IN GERMANY - RESULTS OF THE KIGGS COHORT

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Introduction

Obesity among children and adolescents is very likely to persist until adulthood. The aim of this analysis is to present data on the tracking of weight status from childhood and adolescence to young adulthood.

Methods

Body weight and height from participants of the population based German Health Interview and Examination Survey for Children and Adolescents (KiGGS) aged 2-17 years at baseline (2003-2006) and aged 10-31 years at the second follow-up (KiGGS Wave 2, 2014-2017) were measured. The analyses are based on 5,447 children, adolescents and young adults for both surveys. Obesity (>P97) was defined using the national German reference percentiles. Transition probabilities (%, 95%-CI) as incidence, remission and persistence for obesity within the observation period of about 10 years were presented. In the analyses, weighting factors are used that take into account official population distributions at the time of the KiGGS baseline as well as to adjust a possible bias due to selective reparticipation in the follow-up.

Results

From participants without obesity aged 2 to 17 years at baseline, 5.1% (4.3-6.0) developed obesity over the next 10 years. 53% (44-61) of the participants with obesity at baseline no longer had obesity about 10 years later, the other half (47%; 39-56) was still affected by obesity. Male participants with obesity had a higher remission (60%; 49-70) and a lower persistence (40%; 30-51) compared to female participants (44%; 33-55 and 56%; 45-67, respectively; p=0.03). The proportion of new-onset obesity cases appears to decrease with increasing age (p=0.13). Persistence of obesity tends to decrease and remission tends to increase with increasing age until puberty, although the differences were not statistically significant (p=0.23).

Conclusions/Outlook

Half of the children and adolescents who had obesity at baseline had no longer obesity ten years later. It seems that the time up to puberty is a favourable period for primary and secondary obesity prevention.

O-13-05

CONSORTIUM PROJECT INTEGRATE-ADHD: COMPARISON AND INTEGRATION OF ADMINISTRATIVE AND EPIDEMIOLOGICAL ADHD DIAGNOSIS DATA BY CLINICAL ASSESSMENT IN CHILDREN AND ADOLESCENTS IN GERMANY

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Introduction

Attention-deficit/hyperactivity disorder (ADHD) is one of the most frequently diagnosed mental disorders in children and adolescents. In Germany, for years increasing prevalence rates for ADHD diagnoses were reported from statutory health insurance data, whereas epidemiological data reported constant, recently even decreasing prevalence rates of ADHD diagnoses. The clinical validity of diagnoses from either data source is unknown. The aim of the consortium project INTEGRATE-ADHD, funded by the German Innovationsfond and running from 01.01.2021 to 31.12.2023, is to compare administrative and epidemiological ADHD prevalence rates and to clinically validate them by means of a guideline-based diagnostic procedure in order to better understand the discrepancies between the different data sources.

Methods

A total of n=5,000 parents whose children are insured by a large German statutory health insurance (DAK-Gesundheit) and present with an administrative ADHD diagnosis will be surveyed online with with epidemiological questionnaires. The survey includes information on ADHD diagnosis and treatment of the child and both quality of and satisfaction with ADHD-associated health care. A sub-sample of n=200 participants will additionally be clinically assessed according to the current German AWMF-S3 guideline ADHD.

Results

Administrative and epidemiological data on ADHD diagnosis will be compared, integrated and validated by clinical assessment. In addition, health care utilization, quality of care, treatment satisfaction, economic aspects, and health-related quality of life will be examined.

Conclusions/Outlook

The results of INTEGRATE-ADHD serve to define fields of action for health policy and self-administration in the German healthcare system. Recommendations for improving the diagnosis and care of ADHD-affected children and adolescents and their families will be derived and made available to relevant decision makers and stakeholders.

O-13-06

ANTIBIOTIC PRESCRIBING IN CHILDREN AGED 0–6 YEARS IN GERMANY: ASSESSING REGIONAL VARIATIONS AND POTENTIAL EXPLANATIONS BASED ON CLAIMS DATA

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Introduction

Regional variation in pediatric antibiotic prescribing in Germany has been reported, but a recent systematic description and exploration of potential reasons for this variation are lacking. This study aimed to describe regional variation in pediatric antibiotic prescribing in Germany in 2017 and investigate potential reasons for this variation.

Methods

Using the German Pharmacoepidemiological Research Database (GePaRD), we identified children aged 0–6 years in 2017 and extracted information on their residential district. Districts with <100 eligible children were excluded. We calculated antibiotic prescription rates as the number of outpatient prescriptions of systemic antibiotics (ATC codes J01 and P01AB01) per 1,000 individuals/year. We used multilevel logistic regressions to investigate the association of individual (age, sex, socioeconomic status [SES]) and contextual factors (e.g., district-level deprivation and pediatrician density) with antibiotic prescription ("≥1 antibiotic prescription" vs. "none" per person in 2017) while accounting for a random intercept by area level.

Results

Overall, 943,523 children from 397 districts were included. Antibiotic prescription rates in 2017 ranged from 303 to 1,187 per 1,000 children/year across districts. Individual and contextual characteristics explained 27% of the district-level variance. Children with lower SES had 20% higher odds of being prescribed antibiotics as compared to children with higher SES (OR = 1.21; 95% CI 1.20–1.22). Also, district-level deprivation was positively associated with antibiotic prescriptions (highest vs. lowest quintile, OR = 1.35; 95% CI 1.24–1.47).

Conclusions/Outlook

We observed extensive variations in outpatient pediatric antibiotic prescriptions across German districts in 2017 partly explained by age, sex, SES and district-level characteristics. Further exploration is needed in order to develop appropriate strategies for improving quality of pediatric antibiotic prescribing.

VORTRÄGE

O-14 | AG SESSION 14 - NACHWUCHSGRUPPE EPIDEMIOLOGIE: FREIE THEMEN

O-14-01

INFLUENCE OF THE SARS-COV2 PANDEMIC ON WORKFLOWS IN THE ZSE-DUO STUDY IN CENTRES FOR RARE DISEASES

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Introduction

Since 2020, the SARS-Cov2 pandemic has a huge impact on the German health care system. The aim of this analysis was to explore the influence of official restrictions on medical care during the first lockdown period in Germany (March-May 2020) on the workflow in centres for rare diseases (ZSE) and thereby on patient care in the ZSE-DUO study (Dual guidance structure in Centres for Rare Diseases).

Methods

ZSE-DUO is a multicentre study in 11 ZSE (funding by G-BA, Grant 01NVF17031), evaluating the benefit of involving a psychiatric/ psychosomatic expert in the diagnostic process. SARS-Cov2-specific questionnaires for ZSE (on ZSE workflows) and for patients (on accessibility of health care services) were designed.

Results

All 11 ZSE participating in ZSE-DUO completed the questionnaire. During the lockdown a mixture of measures taken with differing periods of time (4-13 weeks) could be observed: 6 ZSE did not invite any patients, 4 ZSE implemented a prioritisation of patients (only urgent cases were seen), and in 1 ZSE both scenarios occurred. In 10 ZSE, employees experienced restrictions regarding their workflow. In 7 of those ZSE, employees were only allowed to work for a certain limited number of hours. Internal case conferences were not possible in 2 ZSE, in the other 9 ZSE either video conferences were used, or fewer conferences were made. Moreover, 8 ZSE stated problems in the process of gathering the patients' documents prior to the appointments or in the follow-up process. 190 patients returned a questionnaire; of those, 162 were scheduled at a ZSE during the lockdown period. 23 appointments (12.2%) had to be postponed; in 21.7% (5 cases) on request of the patient.

Conclusions/Outlook

During the first lockdown period in Germany different measures to combat the SARS-Cov2 pandemic were applied in the ZSE participating in the ZSE-DUO study, balancing care, patient needs and infection control requirements. These efforts were honoured, as most of the patients took advantage of the appointments offered.

O-14-02

IMPACT OF THE COVID-19 PANDEMIC ON ONGOING HEALTH RESEARCH: AN AD HOC SURVEY AMONG INVESTIGATORS IN GERMANY

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Introduction

Lockdowns and social distancing related to the COVID-19 pandemic can impair epidemiologic and public health research, especially if unrelated to COVID-19. On the one hand, the pandemic has placed scientific epidemiologists at the forefront of COVID-19 research. On the other hand, research institutions have reduced onsite activities, data is often collected remotely, and researchers were partially forced to abandon their projects in favour of front-line care and crisis response. The study intended to gain insights into the impact of the COVID-19 pandemic on ongoing health research projects, using projects from a selected funding program in Germany ("Gesund – ein Leben lang").

Methods

An online survey was performed among 120 investigators of public health research projects across Germany (epidemiology, health services and prevention research), in May 2020. The response rate was 78%. 85 responses were included for analysis.

Results

The majority of investigators (93%) reported that their projects were affected by the pandemic, with 80% stating that data collection was not possible as planned, and they could not carry out interventions as planned (67%). Other impacts were caused by staff being unavailable, e.g. through child or elder care commitments or due to COVID-19 quarantine / illness. Investigators also reported that publications were delayed or cancelled (56%), and some experienced problems with PhD or Masters theses (18%). The majority of investigators had mitigation strategies in place such as adjustment of data collection methods using digital tools (46%), others made changes in research design or research questions (27%).

Conclusions/Outlook

The COVID-19 pandemic has impaired public health research. The main challenge is now to mitigate negative effects and to improve long-term resilience in health research. The pandemic has also acted as a driver of innovation, e.g. by accelerating the use of digital methods.

O-14-03

ERFASSUNG DER MEDIZINISCHEN STRAHLENEXPOSITION – ERGEBNISSE UND ERFAHRUNGEN EINER DER ERSTEN VOLLSTÄNDIG IMPLEMENTIERTEN LEVEL-3-STUDIEN IN DER NAKO GESUNDHEITSSTUDIE

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Introduction

Der Anteil der medizinischen Expositionen an der jährlichen Gesamtstrahlenexposition in der deutschen Bevölkerung beträgt circa 50%, dazu tragen insbesondere Computertomographien (CT) bei. Die medizinische Indikation der radiologischen Untersuchungen ist jedoch meistens unbekannt, da keine detaillierten Daten hierzu vorliegen. Diese multizentrische Level-3-Studie erfasst retrospektiv und prospektiv die medizinische Strahlenexposition sowie die medizinischen Indikationen in einer Teilkohorte von NAKO-Studienteilnehmenden.

Methods

Die retrospektive Erfassung erfolgte über ein zusätzliches Touchscreen-Modul angebunden an die NAKO-Basiserhebung. Zwei Follow-up (FU) Erhebungen zu zwischenzeitlich erfolgten radiologischen Untersuchungen und den medizinischen Gründen wurden durchgeführt. Ein Röntgenpass wurde zur Dokumentation interessierender Dosisparameter ausgehändigt.

Results

3.923 Studienteilnehmende nahmen zwischen Oktober 2017 und August 2018 an vier NAKO-Studienzentren teil (Teilnahmerate: 82%). CT (41%), allgemeine Röntgenuntersuchungen (25%) und nuklearmedizinische Diagnostik (14%) stellen insgesamt 80% aller berichteten Untersuchungen dar. Baseline und FU-Daten zeigten keine geschlechtsspezifischen, hingegen altersspezifische Unterschiede bezüglich der medizinischen Indikationen. In den Altersgruppen 40-50 Jahre und >50 Jahre wurden vermehrt Bandscheibenvorfälle, Wirbelsäulenschmerzen und kardiovaskuläre Erkrankungen angegeben. Im FU-Zeitraum wurden allgemeine Röntgenuntersuchungen am häufigsten berichtet.

Conclusions/Outlook

Die vorgestellte Erfassung der medizinischen Strahlenexposition innerhalb einer großen bevölkerungsbezogenen Kohorte ist bislang einmalig. CT-Diagnostik macht einen erheblichen Anteil aller radiologischen Untersuchungen aus. Bei einer Ausweitung und Fortführung wird langfristig die Quantifizierung von strahlenassoziierten Risiken und die Berücksichtigung als Confounder für andere zu untersuchende Risikobeziehungen möglich.

O-14-04

THE IMPACT OF SMOKING ON DEATHS AND DISEASE IN THE FACE OF POPULATION AGEING IN GERMANY

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Introduction

Despite weak tobacco control, smoking in Germany has steadily declined over the last 25 years. As policymakers often expect that this trend will also reflect in a declining associated public health burden, I sought to quantify trends in smoking-attributable mortality (SAM) and to explore the impact of population ageing.

Methods

Smoking and mortality statistics from 1992 to 2018 were obtained from the German Statistical Office, from which SAM was calculated separately for each cause of death causally associated with smoking using Levin's formula for population-attributable fractions . The impact of population ageing was explored by comparing crude and age-standardized SAM, respectively. To estimate the impact of population ageing on future SAM, a forward projection until 2040 was modelled assuming continuation of smoking trends and constant mortality rates.

Results

About 126.900 deaths were attributable to smoking in Germany in 2018. Since 1992, total SAM declined only slightly, while stronger decreases were seen in age-adjusted SAM. Differences between crude and age-standardized SAM seem to be particularly striking in men. The forward projection of SAM suggests that recent increases in smoking in the middle aged as well as population ageing dynamics will lead to further steady increases within the next two decades in both sexes to about 138.250.

Conclusions/Outlook

Results indicate that past decreases in SAM due to declines in smoking were largely compensated by population ageing. In the next two decades, current smoking trends and population ageing will lead to a steady increase in SAM. Only by taking determined immediate policy action could significant inroads into reducing the smoking-associated disease burden be achieved. Also, given still significant smoking rates in middle and old age, there is tremendous potential to curb the associated public health burden by intensifying cessation programs.

O-14-05

PSYCHOLOGICAL DISTRESS, ANXIETY AND DEPRESSION IN ADOLESCENT AND YOUNG ADULT (AYA) CANCER SURVIVORS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction

Adolescent and young adults (AYAs) 15-39 years old represent a distinct population among cancer survivors, related to differences in cancer biology and their unique needs. Previous reviews have reported higher psychological distress among AYAs, however data on specific emotional domains remain limited. The aim of this review was to synthesize published data on prevalence, risk and trajectories of psychological distress, anxiety and depression in AYA cancer survivors and summarize differences in risk in comparison to healthy peers or other cancer survivors.

Methods

A systematic literature search was conducted in PubMed, PsycINFO, Scopus and Web of Science from inception until March 2020. Quantitative studies (cross-sectional, cohort, case-control) reporting on psychological distress, anxiety and/or depression in AYA cancer survivors were included. The quality of the studies was appraised using the Newcastle-Ottawa Scale. Pooled prevalence of depression was estimated using random-effects models in a meta-analysis.

Results

44 studies were included, of which nine were of unsatisfactory quality. A wide range of prevalence rates were reported for psychological distress (median=28%, range=4-89%), anxiety (median=26%, range=15-75%) and depression (median=24%, range=5-90%). Only five studies used standardized interviews or registry linkage data. Pooled prevalence of depression was 29% (95%CI 25%-32%). AYA cancer survivors (especially women, single survivors and those with comorbidities) were at increased risk for psychological distress compared to healthy peers or older survivors. The levels of distress improved over time, with fewer individuals reporting persistent anxiety and/or depression.

Conclusions/Outlook

Despite discrepancies in included studies, AYAs seem to be at risk of developing mental health issues. Routine screenings using standardized procedures should be integrated into oncology facilities to provide adequate mental healthcare in all survivorship steps.

O-14-06

JOINUS4HEALTH: THREE COHORTS (SHIP, ROTTERDAM STUDY AND BIALYSTOK PLUS) AND THEIR PATHWAY TO RESPONSIBLE RESEARCH AND INNOVATION VIA CROWD-SOURCING

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Introduction

Responsible Research and Innovation (RRI) may offer opportunities to counteract declining response in cohort research, which has been observed worldwide for years. RRI involves engagement of multiple societal groups in research and easier access to science results and education. More targeted and wider communication of cohort findings in easy-to-understand language may also raise awareness and perceived value of cohort studies in local communities. We aim to a) present a roadmap to combine RRI and crowdsourcing as converging approaches to promote inclusive innovation and citizen engagement and b) to assess effects on response in cohort research.

Methods

Three population-based cohort studies (SHIP, Germany; Rotterdam Study, Netherlands; Bialystok PLUS, Poland) have generated up to 31 follow-up years of health data for 27,000 participants to date. As part of the EU H2020 funded JoinUs4Health project (01/21-12/23), these cohorts strive to create knowledge in closer proximity to society and stimulate interactive forms of knowledge production. 'Citizen science boards' and 'Monitoring and Evaluation groups' are engaged in design and revision of activities and procedures (in total 60 representatives from five groups - citizens, science, policy, business, education).

Results

We present a RRI roadmap combining several pathways to generate RRI by means of crowdsourcing. The presentation includes an outline of the underlying concept, b) web-platform (full release: 12/2021), c) communication and dissemination strategy, d) engagement approaches, e) institutional changes and f) evaluation strategies (response, attitude towards science).

Conclusions/Outlook

By engaging cohort participants, citizens and other groups of societal actors in a more co-creative manner, population-based research may become more sensitive to societal expectations and concerns and enhance citizens' preparedness to participate in cohort research.

VORTRÄGE

O-15 | AG SESSION 15 - EPIDEMIOLOGIE DES ALTERNS (SESSION I)

O-15-01

NUMBER OF PEOPLE IN NEED OF LONG-TERM CARE BY 2040: OFFICIAL POPULATION PROJECTIONS AND CARE RATE OF THE GERMAN FEDERAL HEALTH CARE REPORTING SYSTEM (GBE-BUND)

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Introduction

Rothgang et al. [1] predicted 3.4 million people in need of long-term care in 2030, but data from the German Federal Health Monitoring System (GBE-Bund) [2] showed that this number would already be reached in 2017. In consideration of the GBE-Bund data (1999-2019) this study aimed to predict the number of people in need of long-term care until 2040 in order to enable appropriate resource planning.

Methods

The estimated number of people in need for long term-care was calculated based on the prevalences of the care rate (GBE-Bund) [2] and the official population prediction of the German Federal Statistical Office [3] using the statistical software R. Therefore, two scenarios were used to calculate up to 2040. First scenario: the last reported care rate of the GBE [2] was updated; Second scenario: The upward trend from the 1999-2019 of the GBE reporting period was used to complete the 2019 long-term care rate data.

Results

The calculations were stratified according to men and women and considered as a whole, thus, the prediction for Scenario 1 was 5.16 million people in need of long-term care in 2040 (3.18m women) compared to 4.13 million people (2.57m women) in the initial year 2019(*Figure 1*, *Table 1*). For scenario 2 the number was 5.52 million (3.41m women). This corresponds to an increase of 25% respectively 34% (24% respectively 33% for women) (*Figure 1*,*Table 1*).

Conclusions/Outlook

This calculation showed an expecting number of more than 5 million people in need of long-term care, which is awaited to still increase. The expected increase compared to the latest data for 2019 was about one third. As a limitation of this prognosis, the update did not consider increasing life expectancy due to better nursing and medical care for those in need of care and therefore it might be biased. Further research should be done considering a multi-stage model regarding incidence and mortality.

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[3] https://bit.ly/3ebvOhB

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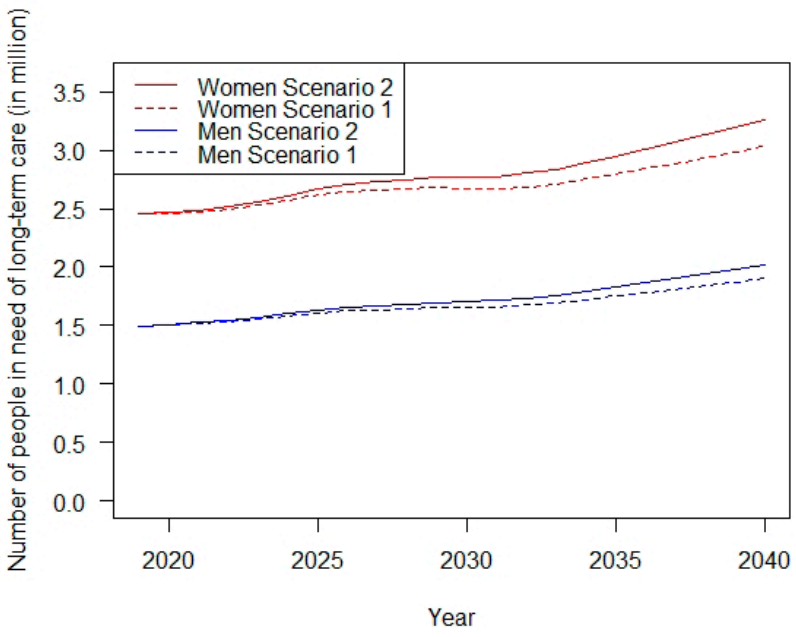

Figure 1: Predicted number of people in need of long-term care
Figure 1: Development of the number of people in need of long-term care 8in million) from 2019 to 2040 stratified for women (red) and men (blue) for the two analysed scenarios.

	Scenario	2019	2040	Increase*
Men	1	1,56	1,98	+27,23%
	2	1,56	2,11	+34,97%
Women	1	2,57	3,18	+23,71%
	2	2,57	3,42	+32,84%
Total	1	4,13	5,16	+25,04%
	2	4,13	5,52	+33,65%

*) Increase in 2040 compared to 2019

Table 1: Number of people in need of long-term care and its percent change
Table 1: Number of people needing long-term care (in million) stratified by women, men and total in 2019, 2040 and its percent change for the two analysed scenarios.

O-15-02

PHYSICAL ACTIVITY TRAJECTORIES AND ALL-CAUSE MORTALITY CARLA-STUDY 2002-2019

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Introduction

A physical active lifestyle is recognized as a predictor of healthy aging. However, the majority of studies exploring its association with mortality in cohorts of adults used single-time PA estimates, which do not consider its dynamic nature with changes while aging. The aim of the present study is to explore the presence of different PA trajectories in a population-based cohort and their association with mortality risk. Our hypothesis is that prospectively sustaining a high PA level is associated with a reduced mortality risk.

Methods

We used data of the population based cohort study CARLA and included 1041 subjects with self-reported physical activity at baseline (2002-2006), first follow-up (2007-2010) and second follow-up (2013). Trajectories were identified using latent class analysis. Cox proportional hazard models were used to assess the association between trajectories of PA and all-cause mortality during ~6 years since the second follow-up after adjusting for age, sex, lifestyle factors and comorbidities.

Results

Three PA trajectories (categorized as a consistently low (Group 1), a consistently moderate (Group 2), and a high at baseline with strongly decreasing PA across time (Group 3)) were identified, and 121 deaths due to all causes occurred. Compared with participants who were consistently inactive throughout the follow-up period (Group 1), participants who maintained moderate PA-levels (Group 2) were at a lower risk of all-cause mortality (hazard ratio [HR], 0.50; 95%CI, 0.30-0.70). Adults who started with high PA-levels and had strongly decreasing PA across time (Group 3), showed no effect in regards to mortality risk when compared to the participants with consistently low PA-levels (hazard ratio [HR], 0.89; 95%CI, 0.50-1.70).

Conclusions/Outlook

Maintaining higher PA levels in late adulthood were associated with a lower risk of mortality. Our results suggest that maintaining a moderate or high level of PA had a more protective effect than having high PA levels only temporary.

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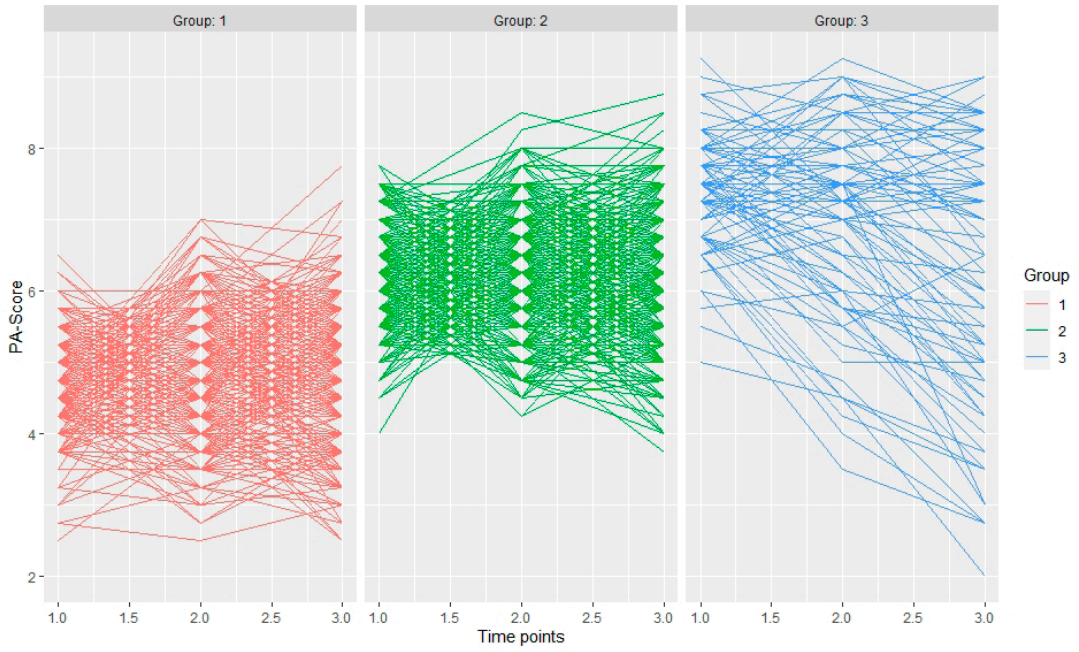
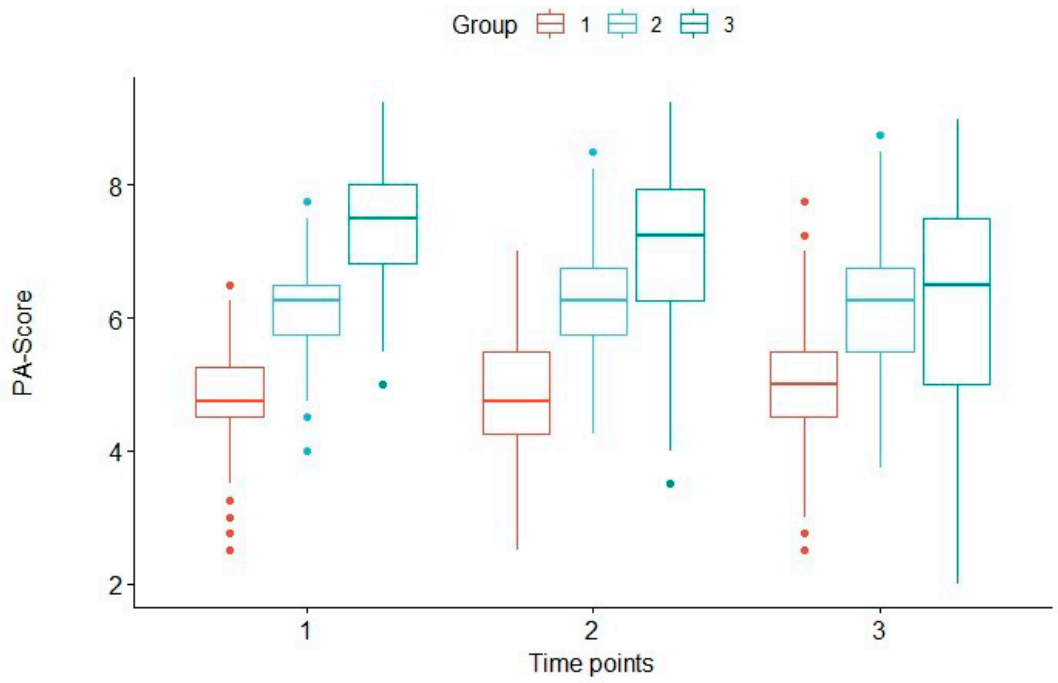


PA-Trajectories
Regression lines of the participants in each trajectory based on the Physical Activity (PA) measurements of 1041 CARLA participants at 3 time points



PA-Trajectories mean PA-Score value across 3 Time points
Boxplot showing the mean PA-Score across three time points of the 1041 CARLA participants according to their PA-Trajectories.

O-15-03

SOCIAL ISOLATION AND INCIDENT DEMENTIA IN THE OLDEST-OLD – A COMPETING RISK ANALYSIS

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Introduction

Social isolation is a risk factor for dementia. However, less is known about social isolation and dementia with respect to competing risk of death, particularly in the oldest-old, who are at highest risk for social isolation, dementia and mortality. Therefore, we aimed to examine these associations in a sample of oldest-old individuals.

Methods

Analyses were based on follow-up (FU) 5 to 9 of the longitudinal German study AgeCoDe/AgeQualiDe. Social isolation was assessed using the short form of the Lubben Social Network Scale (LSNS-6), with a score ≤ 12 indicating social isolation. Structured interviews were used to identify dementia cases. Competing risk analysis based on the Fine-Gray model was conducted to test the association between social isolation and incident dementia.

Results

Excluding participants with prevalent dementia, n = 1,161 individuals were included. Theirmean age was 86.6 (SD = 3.1) and 67.0% were female.Prevalence ofsocial isolation was 34.7% at FU 5, 9.7% developed dementia and 36.0% died during a mean FU time of 4.3 (SD = 0.4) years. Adjusting for covariates and cumulative mortality risk, social isolation was not significantly associated with incident dementia; neither in the total sample (sHR: 1.07, 95%CI 0.65-1.76, p = .80), nor by gender (men: sHR: 0.71, 95%CI 0.28-1.83, p = .48; women: sHR: 1.39, 95%CI 0.77-2.51, p = .27).

Conclusions/Outlook

In contrast to the findings of previous studies, we did not find an association between social isolation and incident dementia in the oldest-old. However, our analysis took into account the competing risk of death and the FU period was rather short. Future studies, especially with longer FU periods and more comprehensive assessment of qualitative network characteristics (e.g. loneliness and satisfaction with social relationships) may be useful for clarification.

O-15-04

THE INTER-RELATIONSHIP BETWEEN DEPRESSED MOOD, FUNCTIONAL DECLINE AND DISABILITY OVER A 10-YEAR OBSERVATIONAL PERIOD WITHIN THE LONGITUDINAL URBAN COHORT AGEING STUDY (LUCAS)

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Introduction

The WHO defines 'healthy ageing' as 'the process of developing and maintaining the functional ability'. Late-life depression and frailty compromise wellbeing and independence of older people. To date, there exists little research on the interaction of the dynamic processes of frailty and depression and only a few studies were longitudinal. Conclusions about the direction of effects remained uncertain.

Methods

Data were obtained from each of the last six biyearly waves (2007–2017) of the Longitudinal Urban Cohort Ageing Study (LUCAS) in Hamburg, Germany, a prospective observational cohort study of manifold aspects of ageing. Screening of predictor and event variables: depressed mood: one question from the 5-item Mental Health Inventory Screening Test; frailty: LUCAS Functional Ability Index, status 'frail'; disability: one question on need for human help with basic activities of daily living. Kaplan-Meier curves and Cox's proportional hazards regression were used for time-to-event analyses with shifting baseline.

Results

Sample size in 2007 was 2012, average age 76.2 years; ±6.5. Main results were as follows: (1) depression significantly increased the hazard of subsequent frailty (HR=1.581; 95% CI 1.257 to 1.988; p<0.001); (2) frailty significantly increased the hazard of subsequent depression (HR=2.324; 95% CI 1.703 to 3.172; p<0.001); (3) depression significantly increased the hazard of subsequent disability (HR=2.589; 95% CI 1.885 to 3.557; p<0.001) and (4) disability did not significantly increase the hazard of subsequent depression (HR=1.540; 95% CI 0.917 to 2.579; p=0.102).

Conclusions/Outlook

Our results suggest an interdependence of the processes of depression and frailty/disability rather than unidirectional dependencies. These observable processes may be representative of underlying unobservable profound life changes. Obviously, there is a need for early screening to initiate appropriate interventions.

O-15-05

PREVALENCE OF HIGH RESILIENCE IN OLD AGE, SOCIODEMOGRAPHIC CORRELATES, AND THREAT EXPERIENCE BY COVID-19 - RESULTS OF A REPRESENTATIVE STUDY

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Introduction

Resilience means good adaption despite adversity and is associated with successful aging. Until now, research on resilience and its sociodemographic correlates in old age is scarce and shows heterogeneous results. The purpose of this study is to estimate the prevalence of high resilience in a representative sample of the German old age population. Further, we want to examine sociodemographic correlates of high resilience and if it affects older adults' perspective on the COVID-19 pandemic.

Methods

A representative telephone survey with a sample of n = 1,005 adults aged 65 years and older was conducted during the first COVID-19 lockdown in April 2020. Measurements included socio-demographic variables and perceived threat by COVID-19. We assessed resilience with the German adaption of the Brief Resilience Scale. We performed ordinal logistic regression analysis to examine the association of high resilience with perceived threat by COVID-19.

Results

Participants were on average 75.5 (*SD* = 7.1) years old and 56.3% (n = 566) were female. The estimated prevalence of high resilience was 18.7% (95% CI = [16.3; 21.2], n = 168). High resilience occurred more often in the younger age group and with higher education. Results of the ordinal regression analysis showed a significant association of high resilience with lower perceived threat by COVID-19.

Conclusions/Outlook

About one fifth of older adults shows high resilience and thus generally adapts well in face of adversity. In old age, younger age and higher education are particular protective factors. The protective role of high resilience is exemplified by a less threatening evaluation of the current COVID-19 pandemic. More research is needed on resilience in old age to target vulnerable groups and to develop support options in late life.

VORTRÄGE

O-16 | AG SESSION 16 - EPIDEMIOLOGIE DES ALTERNS (SESSION II)

O-16-01

INFLUENZA VACCINATION IN NEURODEGENERATIVE DISEASES: STILL FAR FROM BEING SATISFACTORY

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Introduction

In preparation for the vaccination against SARS-CoV-2, we use influenza vaccination as an example to investigate the vaccination behavior of vulnerable individuals with neurodegenerative diseases such as dementia (DEM) and Parkinson's disease (PD) for which higher morbidity and mortality in case of influenza is already known.

Methods

We used health claims data from 2014-2019 of 250,000 insured individuals aged 50+ and applied GEE binary logistic regression models to examine the odds of influenza vaccination dependent of DEM and PD, controlling for confounding variables such as age, sex, institutionalization, severity of care need, various comorbidities, and proximity to death.

Results

Overall, we see higher influenza vaccination coverage rates (IVCR) in patients with DEM (50.4%) and PD (49.7%) compared with patients without these conditions (no DEM: 30.8%; no PD: 32.1%) which was specifically true in younger patients. However, adjusting for all covariates, the presence of dementia did not increase the odds of vaccination (OR=0.98, p=0.087). Among individuals living at home that were not in their last year of life, dementia even significantly lowered the odds of vaccination (without severe care dependency: OR=0.97, p<0.001) which became even worse in case of severe care dependency (OR=0.79, p=0.001). Individuals in nursing homes were more likely to be vaccinated regardless of dementia. Persons with PD, however, always showed an increased chance of being vaccinated against influenza (OR=1.13, p<0.001).

Conclusions/Outlook

Our study showed that IVCR are still too low for vulnerable persons. While PD increased the odds of influenza vaccination, dementia did not further increase the odds. Especially, demented persons with severe care need living at home seemed to be particularly affected by more difficult access to influenza vaccination.

O-16-02

DO ANTIBIOTICS FOR SYSTEMIC USE HAVE AN IMPACT ON DEMENTIA?

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Introduction

The risks and consequences of antibacterials for systemic use in preexisting dementia patients have been widely addressed and discussed in the literature. However, a possible association between previous antibacterial use and subsequent pathogenesis of dementia has not been investigated. Our aim was to investigate the association between the prescription of antibacterials for systemic use and subsequent dementia risk.

Methods

For the cohort study, health claims data from the largest German health insurance ("AOK") in the period from 2006 to 2019 were used. The sample included individuals aged 60 years and older. We divided antibacterials into classes according to the Anatomical Therapeutic Chemical Classification (ATC code) of active ingredients and drugs and performed analyses for each subtype. Cox proportional hazards models were applied to compute hazard ratios for dementia and for the corresponding 95% confidence intervals. All models were adjusted for age, gender, important infections and comorbidities.

Results

Antibacterials of the classes tetracyclines (J01A), beta-lactam antibacterials (J01C), other beta-lactam antibacterials (J01D), sulfonamides and trimethoprim (J01E), macrolides, lincosamides and streptogramin (J01F) and other antibacterials (J01X) significantly reduced the risk of subsequent dementia for antibiotic users. The protective effect ranged from 7% to 21% (J01A: HR=0.90; 95% CI = 0.85-0.95; J01C: HR=0.89; 95% CI = 0.85-0.95; J01D: HR=0.90; 95% CI = 0. 84-0.95; J01E: HR=0.93; 95% CI = 0.86-0.99; J01F: HR=0.87; 95% CI = 0.82-0.91; J01X: HR=0.79; 95% CI =0.68-0.91).

Conclusions/Outlook

Treatment of bacterial infections with certain types of antibacterials is associated with a reduction in dementia risk. A possible explanation may be the reduction and avoidance of systemic inflammation. Investigations in patient groups with an increased risk of infection, e.g. diabetic patients, is useful to uncover potential benefits from antibiotic treatment.

O-16-03

ASSOCIATION OF CO-MEDICATION QUALITY WITH SURVIVAL IN OLDER COLORECTAL CANCER PATIENTS

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Introduction

Pharmacological care of older colorectal cancer (CRC) patients is challenging. Given the sparseness of available evidence, we aimed to evaluate the association of medication quality with survival in a large cohort of older CRC patients.

Methods

A prospective cohort study was conducted with 3,239 CRC patients aged ≥65 years and recruited during 2003-2016 from the ***Da****rmkrebs:* ***Ch****ancen der Verhütung durch* ***S****creening* study. Concerning medication quality, we assessed the total Fit fOR The Aged (FORTA) score and its sub-scores for medication overuse, underuse, and potentially inappropriate medication (PIM) use. Multivariable Cox proportional hazard or logistic regression models were performed to evaluate the associations with 5-year overall survival (OS) and CRC-specific survival (CSS).

Results

Overall, 3,239 participants were included in this analysis. The hazard ratios [95%-confidence intervals] for total FORTA score ≥7 vs. 0-1 point were 1.83 [1.40-2.40] and 1.76 [1.22-2.52] for 5-year OS and CSS, respectively. The FORTA sub-scores for PIM use and overuse contributed to a similar extent to the result of the FORTA score whereas no association was observed for underuse. Results for the total FORTA and PIM score were particularly strong among patients receiving chemotherapy, men and patients with rectal cancer patients.

Conclusions/Outlook

Poor total co-medication quality was significantly associated with worse 5-year OS and CSS. Randomized controlled trials are warranted to test whether improved cancer co-medication management in older CRC patients prolongs their survival.

O-16-04

EVALUATION OF A MEDICAL SECOND OPINION PROGRAMME ON PATIENTS' DECISION AND PREDICTORS FOR OR AGAINST KNEE ARTHROPLASTY – RESULTS FROM A HOSPITAL-BASED COHORT STUDY

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Introduction

Osteoarthritis of the knee joints can be severely disabling. It is a frequent reason for total or partial arthroplasty in older adults. However, approximately 20% of patients report pain after surgery and are not satisfied with functional outcomes. An insufficient decision process in favour or against surgery may be one of the reasons for suboptimal outcomes. This study aimed to evaluate the effects of a second opinion programme in patients recommended for arthroplasty.

Methods

Patients were included if they had received an initial indication for knee arthroplasty and sought a second opinion at a large academic tertiary care centre specialized in joint surgery (October 2016 to March 2020). Patients were insured with a large statutory health insurance fund supporting the second opinion process. Second opinion consultations followed recent guidelines for knee arthroplasty. Data were collected immediately before and after the consultation.

Results

A total of141 patients with a mean age of 64.5 (SD 9.9 years, 50% male, 36% obese body mass index>30) were included. Knee arthroplasty was recommended to 40% of the patients, wait and see to 40%. In 20% of cases there was no indication for knee arthroplasty. After consultation 12% of patients were still unsure about their decision. Patients were significantly more confident in their decision after the consultation (decision confidence scale, before: 5.4, SD 3.0; after: 7.8, SD 2.5; $p<0.001$). Higher radiological severity of osteoarthritis (adjusted odds ratio AOR=17.2, $p=0.001$) and lower knee-related quality of life (Knee Injury and Osteoarthritis Score KOOS, AOR=1.0, $p=0.041$) were positively associated with a recommendation for knee arthroplasty.

Conclusions/Outlook

Less than half of all recommendations for knee arthroplasty were confirmed in a second opinion consultation. Systematically integrating second opinion consultations into the decision process may improve adherence to guidelines and reduce decision uncertainties for patients with knee osteoarthritis.

O-16-05

PREVALENCE OF IMPAIRED FUNCTIONAL READING ABILITY AND ITS ASSOCIATION WITH QUALITY OF LIFE, DAILY ACTIVITY, MOBILITY AND SOCIAL PARTICIPATION AMONG GENERAL OLDER ADULTS IN GERMANY

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Introduction

The prevalences of visual impairment and of impaired functional reading ability rapidly increase with age. However, functional reading ability is essential for an autonomous lifestyle. We analysed the prevalence of impaired functional reading ability in the general elderly population and its association with quality of life, daily activities, mobility, and social participation.

Methods

Cross-sectional data from a population-based cohort (Study of Health in Pomerania) were analysed. Participants aged ≥65 years were tested for their functional reading ability using (1) Nieden charts (cognitive reading ability) and (2) a test in which a telephone number had to be found (reading comprehension). Prevalences of impaired functional reading ability were calculated. In multivariable regression models, the associations of cognitive reading ability (1) with quality of life, daily activities, mobility, and social participation were examined.

Results

Overall 741 (95.0%) of 780 participants with a mean age of 72.8 years were able to read the first text (biggest font, poor reading ability) out of a total of 7 texts. 60 participants (7.7%) were able to read the third to last text of the Nieden test (minimum level of good cognitive reading ability) as most, while only 3 participants (0.4%) were able to read the text in the smallest font (very good cognitive reading ability). 7 participants (0.9%) were unable to read any of the texts. In total 716 participants (91.8 %) identified the phone book entry successfully (good reading comprehension). Multivariable regression models revealed no significant associations of the cognitive reading ability (1) with quality of life, daily activities, social participation and mobility.

Conclusions/Outlook

Our results showed a high prevalence of impaired cognitive reading ability (1). Reading comprehension (2) was only slightly affected. The loss of cognitive reading ability usually progresses over years; signs and symptoms might remain unrecognized when compensated by other functions.

O-16-06

GESUNDHEIT 65+ - EXTENDING RKI HEALTH MONITORING TO OLDER PEOPLE INCLUDING PERSONS WITH PHYSICAL AND COGNITIVE IMPAIRMENTS AND THE VERY OLD: A STUDY OF HEALTH AMONG OLDER PEOPLE IN GERMANY

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Introduction

In Germany, about 22% of the population are 65 years of age and older. Therefore, and in the light of the Covid-19 pandemic, representative health data for this age group is urgently needed. The aim of the longitudinal study 'Gesundheit 65+' by the Robert Koch Institute is to provide representative data on the health situation of people aged 65 years and older in Germany.

Methods

In a two-stage sampling process, 128 primary sample points were defined and 8,300 persons aged 65 years and older will be randomly selected from population registers between May and February 2022. Using a mixed-mode data collection design, participants will be contacted and asked to answer a health questionnaire covering, but not limited to, limitations in activities of daily living, loneliness, depression, falls, social support, health behavior, participation, and history of SARS-CoV-2 infection. Follow-up contact will be conducted after 3, 6 and 9 months. Depending on the pandemic situation the final follow-up (February to December 2022) will include a home visit and brief health examination (grip strength, cognitive function, blood pressure, height, weight, calf circumference, medication recording). In addition, we will ask the participants' consent to link health insurance data, to assess social infrastructure using geographic information systems, and to conduct mortality follow-up. Informed consent by a legal representative or proxy information are allowed.

Results

'Gesundheit 65+' will provide data on subjective, objective and social health aspects of older and very old people in Germany in times of the COVID-19 pandemic using an established set of health indicators.

Conclusions/Outlook

The results will be used to describe the health needs of older persons, to provide information on direct and indirect effects of the pandemic on old people and to develop recommendations for health policy measures.

POSTER

P-01 | POSTERSESSION 01

P-01-01

THE HEALTH STATUS AND HEALTH CARE UTILIZATION OF ETHNIC GERMANS IN RUSSIA

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Introduction

Resettlers from the Former Soviet Union (FSU) rate their subjective health as worse and utilize some offers of preventative health care less often compared to the autochthonous population in Germany. Evidence about the health status and health care utilization in Resettlers' population of origin, i.e. ethnic Germans in successor states of the FSU, however, is missing. The objective of this study was to compare odds of smoking, diabetes, subjective health and utilization of health check-ups between ethnic Germans in Russia and the Russian population.

Methods

We used data of the Russian Longitudinal Monitoring Survey II from 1994 through 2018 and ran multilevel logistic regression models to compare the odds of smoking, diabetes, subjective health and utilisation of preventative health check-ups among ethnic Germans and the general Russian population. All odds ratios (OR) were adjusted for confounders (year of survey, sex, place of residency, age) and were subsequently adjusted for social and economic mediators (education, employment, income, marital status). In addition, we investigated effect modification of all associations by period (1994-2005 and 2006-2018).

Results

Ethnic Germans rated their health less often as good compared to the general Russian population after adjusting for confounding (OR = 0.62, 95% CI = 0.40 – 0.94). This result did not change after additional adjustment for social and economic mediators. After the year of 2006, ethnic Germans were more likely to smoke compared to the general Russian population (OR = 2.09, 95% CI = 1.14 – 3.86). Odds of diabetes and utilization of health check-ups among ethnic Germans did not differ from the general Russian population.

Conclusions/Outlook

Similar to Resettlers in Germany, ethnic Germans in Russia rate their subjective health worse compared to the majority population. The increased odds of smoking after 2006 may indicate an increasing gap in risky health behaviours compared to the general Russian population.

P-01-02

BEHAVIOURAL CHANGES DUE TO THE FIRST PANDEMIC RESTRICTION IN SPRING 2020 - RESULTS OF COMOLO STUDY FOR KUPFERZELL

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Introduction

Containment measures due to the COVID-19 pandemic are leading to massive changes in the lifestyle of many people. The aim of the analysis was to describe behavioural changes in physical activity and body weight as a result of the restrictions in March/April 2020 considering different sociodemographic characteristics.

Methods

CoMoLo is a population-based, seroepidemiological observation study which was conducted from May to June 2020 in Kupferzell, Germany, and includes n=2.203 adults aged 18 years and older from a random sample of the population registry. Information on physical activity (n=1.957), body weight and height (n=1.966) as well as possible changes due to the everyday and contact restrictions since March 18th 2020 were assessed with a questionnaire. Results were weighted to the population of Kupferzell with regard to age group, sex and school education, and clustering within households was considered. To explore behavioral-related changes bivariate und multinomial regression were conducted.

Results

57,6% (95%-CI: 55,0%-60,2%) of the respondents did not change the physical activity level, 33,6% (31,1-36,2) reduced and 8,8% (7,6-10,3) increased their compared to the time before. Physical activity patterns changed substantially for adults who were already active in sports clubs/groups. 66,7% (64,1-68,9) reported a stable body weight, 14.8% (13,2-16,7) a weight gain of 2 kg or more and 9.4% (8,0-10,9) a weight loss of 2 kg or more. Women (OR: 1,99; 1,50-2,63), 18- 64-year olds (OR: 2,67; 1,70-4,19) and adults with obesity (OR: 1,87; 1,36-2,57) were more likely to report a weight gain.

Conclusions/Outlook

Most adults in Kupferzell did not change considerably their physical activity pattern nor their body weight. Nevertheless, organized sports seem to play an important role for some population groups and online or open-air solutions should be offered. The extent to which changes in body weight gain continue over the next months should be further monitored.

P-01-03

BISMARCK VERSUS BISMARCK: THE INFLUENCE OF SOCIAL AND POLITICAL FACTORS ON THE COVID-19 EPIDEMIOLOGICAL EVOLUTION IN FRANCE AND GERMANY

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Introduction

Although health systems are roughly similar in France and Germany (Bismarck-model), COVID-19 preventive and therapeutic measures implemented in both countries differ significantly. During the first wave of the pandemic, although France ranked higher than Germany in the WHO and OECD rankings of health care systems and quality of care, France recorded more cases of infection and death compare to Germany. During the second wave, France did better while the situation worsened in Germany. However the third wave is challenging both countries almost equaly. This leads us to investigate on the hypothesis of the influence of some social and political factors on the epidemiological evolution of the pandemic

Methods

The research used a mixed-methods with a systematic review analysis, a comparison of facts from epidemiological database and interviews with experts/scientists and politicians.

Results

The following factors were identified as determinants of the evolution of the COVID-19 pandemic in France and Germany during the three waves:

- The specificity of political leaders decision-making (Merkel versus Macron)

- The centralised governance and the homogenity of political decisions in France

- The Federalism and its compromise democracy in Germany

-The well equipped health infrastructure and resources by the german health authorities

- The lack of adequate health care infrastructures in France and the weakness of the France Public Health Agency

- The mobility and the cultural behavior of the population in each of the two countries.

Conclusions/Outlook

The study shows the influence of social and political decisions on the evolution of the COVID-19 pandemic. This correlation could haven't need tree epidemiological waves before being proven. The first wave was sufficient to draw a conclusion and make efficient suggestions for preventing a second or third epidemiological wave regardless of the vaccine discovery. Have political leaders not learned from the previous waves or have scientists failed? To be discussed!

P-01-04

GIF-PLUS+-PROJECT, A CLUSTER-RANDOMIZED CONTROLLED PROSPECTIVE STUDY: DOES THE INTERVENTION EFFECTIVELY FOSTER LINGUISTIC, COGNITIVE, SOCIAL-EMOTIONAL AND MOTOR COMPETENCIES OF CHILDREN IN PRESCHOOLS?

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Introduction

GIF-PLUS+ aims to fosterpreschoolers´ linguistic, cognitive, social-emotional and motor competencies. Therefore, an intervention program for pedagogical professionals at preschools was designed including on-site workshops and the provision of a game box to be integrated into daily work routine.

Methods

A cluster-randomized controlled prospective study was performed (pretest=t0, 2018; posttest=t1, 2019). The children's competencies were annually assessed by using *The Dortmund Developmental Screening for Preschools* (DESK 3-6 R). Preschools were randomly assigned to the intervention group (IG) or control group (CG). Age adjusted median DESK stanine values were analyzed longitudinally at t0 compared to t1 in both groups. Statistical analysis was performed using paired Wilcoxon test. In Stata a multilevel analysis for ordinal variables was performed as the main analysis (predictor variable: study group, DESK at t0; level: preschool ID; outcome data: DESK at t1). Included cases: DESK 3-6 R data from children who participated both at t0 and at t1.

Results

N range = 224-907 (n depending on DESK domain). The Wilcoxon test reveals significant improvements of the median stanine scores in both the IG (language and communication, attention and concentration, basic competence written language, basic competence mathematics, social competence, social interaction; effect sizes r=0,22-0,47) and the CG (gross motor, basic competence written language, basic competence mathematics; effect size r=0,14-0,38) ($p<0.05$). As a result of the multilevel analysis the intervention statistically significantly fosters social competence (B=1.1, SE=0,46 p=0.016) of children in the IG.

Conclusions/Outlook

Despite the short measuring interval, there is evidence for an effectiveness of the intervention in the social areas, whereas no effect was seen on the remaining DESK domains. Further multilevel analysis will be conducted, e.g. including implementation data (dosage of the intervention).

(Equal contribution of VS Ernst and A Kästner).

P-01-05

EINE METHODE ZUR BESTIMMUNG DER RELEVANTEN EGO-ZENTRIERTEN RÄUMLICHEN DIMENSION FÜR DIE BEWERTUNG VON NACHBARSCHAFTSEFFEKTEN: DAS BEISPIEL KARDIOVASKULÄRER RISIKOFAKTOREN

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Introduction

Die Nachbarschaft beeinflusst die Gesundheit auf komplexen Pfaden, die bisher nicht vollständig verstanden sind. Ein Weg zum besseren Verständnis ist die Erforschung der räumlichen Struktur von Gesundheitsphänomenen. Wir vergleichen die räumliche Struktur von zwei kardiovaskulären Risikofaktoren (CVRF) und untersuchen, ob ein nicht gemessener Nachbarschaftseffekt oder räumliche Prozesse nachweisbar sind.

Methods

Es werden Daten aus drei unabhängigen Kohortenstudien (RECORD, DHS, BaBi) verwendet, die jeweils ein Stadtgebiet (Paris, Dortmund, Bielefeld) abdecken. Die Charakteristika der räumlichen Korrelationsstruktur der CVRF (BMI, systolischer Blutdruck), adjustiert für Alter, Geschlecht, Bildungsgrad und Einkommen, werden durch Anpassung eines Exponentialmodells an das Semivariogramm auf Basis der Wohnort-Geokoordinaten geschätzt. Zu Vergleichszwecken wird ein Modell mit zufälligen Effekten angepasst, um die Intra-Klassen-Korrelation innerhalb von Verwaltungseinheiten zu schätzen.

Results

BMI und Blutdruck sind konsistent über die Studien hinweg räumlich strukturiert. Acht bis 22 % der Variabilität des BMI waren räumlich strukturiert mit Radien von 100 bis 240 m. Nur ein kleiner Teil der Korrelation der Residuen wurde durch Bereinigung um die Korrelation innerhalb von Verwaltungseinheiten erklärt (0 bis 4 Prozentpunkte).

Conclusions/Outlook

Der individuelle räumliche Korrelationsansatz liefert stärkere Hinweise auf Nachbarschaftseffekte oder räumliche Prozesse, als ein Mehrebenenansatz selbst für kleine administrative Einheiten. Die räumliche Korrelationsstruktur bietet neue Möglichkeiten, die für die Gesundheit relevante räumliche Dimension abzuschätzen. Die stärkere Korrelationsstruktur, die für den BMI beobachtet wurde, könnte auf individuelle sozioökonomische oder andere Merkmale der Bewohner, sozioökonomische Einflüsse in der Nachbarschaft und auf Prozesse wie soziale Normen oder sozialer Zusammenhalt zurückzuführen sein, die in der unmittelbaren Nachbarschaft wirken.

P-01-06

CAUSES OF NEEDLESTICK AND SHARPS INJURIES WHEN USING DEVICES WITH AND WITHOUT SAFETY FEATURES

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Introduction

Safety-engineered devices (SEDs) have been developed to protect healthcare personnel (HCP) from needlestick and sharps injuries (NSIs). The aim of this study was to analyze NSIs associated with SEDs and non-SEDs among HCP in hospitals, medical offices and care facilities.

Methods

Records from online questionnaires on NSIs were used. Information was assessed on the type of device involved and the type of activity when the injury occured. Causes of NSIs were compared for SED use and healthcare setting. Data were analyzed descriptively.

Results

A sample of 835 files was included. Injuries with SEDs accounted for 35.0% of all NSIs, whereas the proportions were higher in medical offices and lower in care facilities. NSIs in nurses were more often associated with SEDs than NSIs in physicians. NSIs from intravenous needles were associated with SEDs in more than 60% of cases in hospitals and medical offices and in about 30.0% of cases in care facilities. In contrast, suturing was associated with every fourth NSI in hospitals, of which fewer than 10.0% were associated with SEDs. In care facilities, SEDs were involved in 36.1% of NSIs during subcutaneous injections. NSIs during disposal accounted for 29.2% of total NSIs, of which 36.1% were associated with SEDs. Frequent reasons for SED-associated NSIs were technical problems, unexpected patient movement and problems during disposal.

Conclusions/Outlook

Our analysis shows that many NSIs are associated with SEDs. Continuous training is necessary in the handling and disposal of SEDs.

P-01-07

ENTWICKLUNG UND EINFLUSS VON GESUNDHEITSKOMPETENZ BEI AUSZUBILDENDEN IN NORDDEUTSCHLAND

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Introduction

Gesundheitskompetenz (GK) beeinflusst Wohlbefinden und Gesundheit. Sie kann als Ressource dazu beitragen, dass Individuen mehr Kontrolle über ihre Gesundheit erlangen. In Hinblick auf eine gesundheitsgerechte Arbeitsgestaltung adressieren aktuelle Konzepte zur Förderung der GK den Arbeitsplatz und das Bildungssystem. Es stellt sich die Frage, inwiefern sich GK bei jungen Auszubildenden über die Zeit entwickelt und auf welche Weise GK das Gesundheitsverhalten bzw. die Gesundheit beeinflusst.

Methods

In einer Follow-up Untersuchung wurden 1569 Auszubildende aus sechs verschiedenen Branchen (Büro, Einzelhandel, Erziehung, Pflege/medizinische Fachangestellte [MFA], Technik, Friseure) zu der Mitte ihrer Ausbildungszeit erneut schriftlich befragt. Der Fragebogen beinhaltete Fragen zu GK (HLS-EU-Q16) und zu Indikatoren von Gesundheitsverhalten und Gesundheit. Anhand statistischer Test für verbundene Stichproben wurden die zeitlichen Entwicklungsverläufe überprüft, hinsichtlich des Einflusses von GK wurden multivariate Regressionsmodelle gerechnet.

Results

Insgesamt füllten 422 Personen den Fragebogen aus (Follow-up Rate 27%). 391 ProbandInnen wurden in die Analyse eingeschlossen, das mittlere Alter lag bei 21,2 (SD: 5,1) Jahren, 79% waren weiblich. Über die Zeit stieg der GK-Score in der Gruppe Pflege/MFA von 12,1 auf 12,5 statistisch signifikant an (p=0,019). Für Auszubildende mit einer inadäquaten GK zeigte sich im Vergleich zu denjenigen mit einer ausreichenden GK ein erhöhtes Risiko für ein schlechtes psychisches Wohlbefinden (OR: 2,6 95%-CI:1,20-5,45, p<0,001).

Conclusions/Outlook

Unter Auszubildenden verschiedener Branchen zeigt sich in den gesundheitsbezogenen Berufen eine positive Entwicklung von GK über die Zeit, welche möglicherweise durch die Ausbildungsinhalte zu erklären ist. Aufgrund des nicht zu beobachtenden Zusammenhangs von GK und Gesundheitsverhalten in diesem jungen Kollektiv erweist sich als sinnvoll, weitere Untersuchungen zu dieser Fragestellung in dieser Altersklasse durchzuführen.

POSTER

P-02 | POSTERSESSION 02

P-02-01

COVID-19: KNOWLEDGE, ATTITUDES, AND PRACTICE (KAP): A LONGITUDINAL SURVEY IN LOWER SAXONY, GERMANY, 2020

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Introduction

A clear understanding of the population's knowledge, attitudes and practice (KAP) regarding COVID-19 is essential for effective pandemic management. This study aimed to investigate the KAP during two separate waves of the COVID-19 pandemic in 2020 in Lower Saxony, Germany.

Methods

An online-based longitudinal survey was conducted after the first wave (May 2020) and during the second wave (December 2020), involving 271 participants of a non-probabilistic panel. The survey assessed preventive measures, risk perception, concerns, trust, and attitudes towards COVID-19 vaccination. Differences between the two wave periods were assessed using paired Wilcoxon signed-rank tests.

Results

Of 271 participants, 162 (60%) participated in both surveys. Median age was 56 (range 23-76); 100 (62%) were women. The majority agreed that the implemented measures were relevant for containing the pandemic during both surveys (range 80-98% first survey vs 73-99% second), but reported feeling emotionally affected by them, especially by restrictions on private gatherings (61 vs 67%) and travelling (43 vs 54%) (Fig.1). Participants reported increasing concerns including their risk of a Sars-CoV-2 infection (42 vs 53%; p <0.01), and the risk of overburdening the health system (48 vs 91%, p<0.01). Trust in public health, political and scientific institutions was generally high (ranged 77-94% first survey) but deteriorated over time (67-92% second; p<0.01). Overall, 98% of participants supported the prioritization of at-risk groups for COVID-19 vaccination and 79% were willing to be vaccinated. Concerns about possible side effects of the vaccines were reported as the main reason not to get vaccinated (Fig.2).

Conclusions/Outlook

This study highlights the need for regular and evidence-based communication with the public, taking into account the population's perspective in the development and implementation of measures. Efforts to promote confidence in vaccines should focus on addressing people's concerns about their safety.

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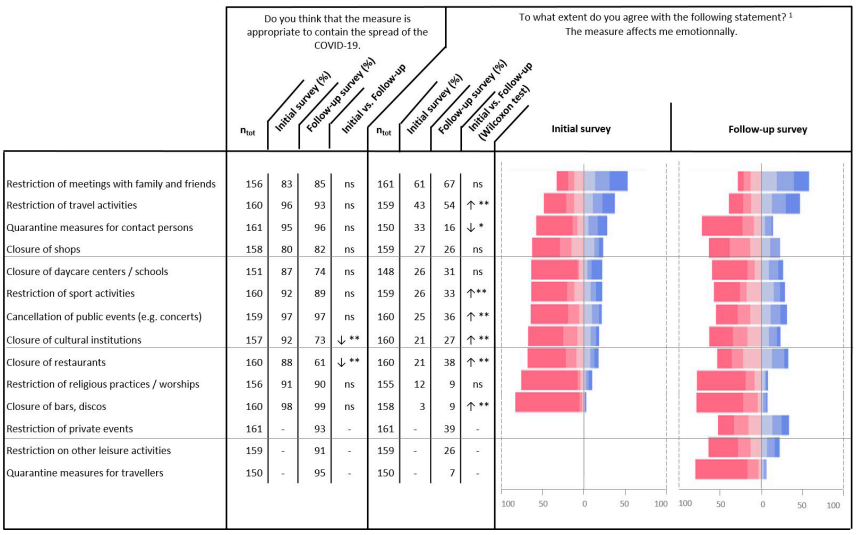
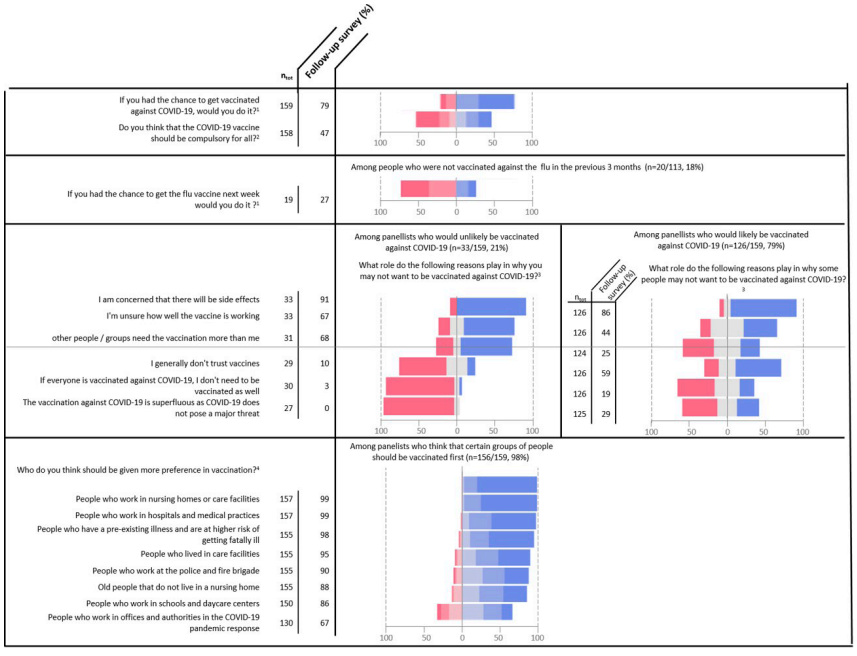


	n_{tot}	Initial survey (%)	Follow-up survey (%)	Initial vs. Follow-up	n_{tot}	Initial survey (%)	Follow-up survey (%)	Initial vs. follow-up (Wilcoxon test)
Restriction of meetings with family and friends	156	83	85	ns	161	61	67	ns
Restriction of travel activities	160	96	93	ns	159	43	54	↑ **
Quarantine measures for contact persons	161	95	96	ns	150	33	16	↓ *
Closure of shops	158	80	82	ns	159	27	26	ns
Closure of daycare centers / schools	151	87	74	ns	148	26	31	ns
Restriction of sport activities	160	92	89	ns	159	26	33	↑**
Cancellation of public events (e.g. concerts)	159	97	97	ns	160	25	36	↑ **
Closure of cultural institutions	157	92	73	↓ **	160	21	27	↑ **
Closure of restaurants	160	88	61	↓ **	160	21	38	↑ **
Restriction of religious practices / worships	156	91	90	ns	155	12	9	ns
Closure of bars, discos	160	98	99	ns	158	3	9	↑ **
Restriction of private events	161	-	93	-	161	-	39	-
Restriction on other leisure activities	159	-	91	-	159	-	26	-
Quarantine measures for travellers	150	-	95	-	150	-	7	-

Fig.1 Attitudes towards the government – implemented COVID-19 pandemic response measures
The Likert scale (from red to blue): [1] [1] It did not affect me – [6] It affected me a lot

n_{tot}: Total number of respondents. Initial survey (%): proportion of participants that positively answered the question in initial survey (4-6 on the Likert scale; blue categories). Follow-up survey (%): proportion of participants that positively answered the question in follow-up survey. Initial vs Follow-up: result of the paired Wilcoxon signed-rank test, ↑: significant result of the test, **: p-value <0.01, *: p-value <0.05, ns: non-significant result



	n_{tot}	Follow-up survey (%)
If you had the chance to get vaccinated against COVID-19, would you do it? [1]	159	79
Do you think that the COVID-19 vaccine should be compulsory for all? [2]	158	47
If you had the chance to get the flu vaccine next week would you do it ? [1]	19	27
I am concerned that there will be side effects	33	91
I'm unsure how well the vaccine is working	33	67
other people / groups need the vaccination more than me	31	68
I generally don't trust vaccines	29	10
If everyone is vaccinated against COVID-19, I don't need to be vaccinated as well	30	3
The vaccination against COVID-19 is superfluous as COVID-19 does not pose a major threat	27	0
Who do you think should be given more preference in vaccination? [4]		
People who work in nursing homes or care facilities	157	99
People who work in hospitals and medical practices	157	99
People who have a pre-existing illness and are at higher risk of getting fatally ill	155	98
People who lived in care facilities	155	95
People who work at the police and fire brigade	155	90
Old people that do not live in a nursing home	155	88
People who work in schools and daycare centers	150	86
People who work in offices and authorities in the COVID-19 pandemic response	130	67

	n_{tot}	Follow-up survey (%)
I am concerned that there will be side effects	126	86
I'm unsure how well the vaccine is working	126	44
other people / groups need the vaccination more than me	124	25
I generally don't trust vaccines	126	59
If everyone is vaccinated against COVID-19, I don't need to be vaccinated as well	126	19
The vaccination against COVID-19 is superfluous as COVID-19 does not pose a major threat	125	29

Fig.2 Perceptions towards COVID-19 vaccination
The Likert scales (from red to blue): [1] [1] I would definitely not get vaccinated, [2] I would probably not get vaccinated, [3] I would probably get vaccinated, [4] I would definitely get vaccinated, [2] [1] does not play a role, [2] plays a small role, [3] plays a big role, [3] [1] They should not be prioritized – [6] They should be prioritized

n_{tot} : Total number of respondents. Follow-up survey (%): proportion of participants that positively answered to the question (blue categories) during the follow-up survey

P-02-02

WILLINGNESS TO ACCEPT A HEPATITIS B VACCINATION AND ASSOCIATED FACTORS IN INDONESIA: AN INSTITUTION-BASED CROSS-SECTIONAL SURVEY

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Introduction

Indonesia is rated as an intermediate-to-high hepatitis B virus endemic region and it is one of 11 countries carrying almost 50% of the global burden of chronic hepatitis. There is no compulsory hepatitis B vaccination programme for adults in Indonesia. Therefore, this study aimed to assess the willingness to undergo a hepatitis B vaccination among Indonesia's adult population and the factors associated with that willingness.

Methods

An institution-based cross-sectional survey was conducted between January and April 2020 in the provinces Yogyakarta and Aceh in Indonesia. Data were collected from 16 health centres and adult participants who worked at or attended the health centre were interviewed face-to-face. A logistic regression model was employed to assess the predictor variables of willingness to receive a hepatitis B vaccination.

Results

A total of 757 of 895 participants (84.6%) completed the interviews and were included in the final analysis. In the adjusted model, the following factors were found to be associated with willingness to accept a hepatitis B vaccination: being female (AOR =2.73; 95% CI: 1.65–4.51), living in Yogyakarta (AOR = 1.87; 95% CI: 1.19–2.93) compared to living in Aceh, having a health insurance for vaccination (AOR = 2.19; 95% CI: 0.81–5.91), working as health care worker in low-risk unit (AOR = 1.74; 95% CI: 0.94–3.22) and high-risk unit (AOR = 3.68; 95% CI: 1.98–6.84) compared to those who worked as non-health worker, and having high-risk perception of hepatitis B (AOR = 3.68; 95% CI: 2.22–6.08) than those who have low-risk perception.

Conclusions/Outlook

This study highlights that insurance that among other variables cover vaccination cost is the important variable for getting vaccinated.

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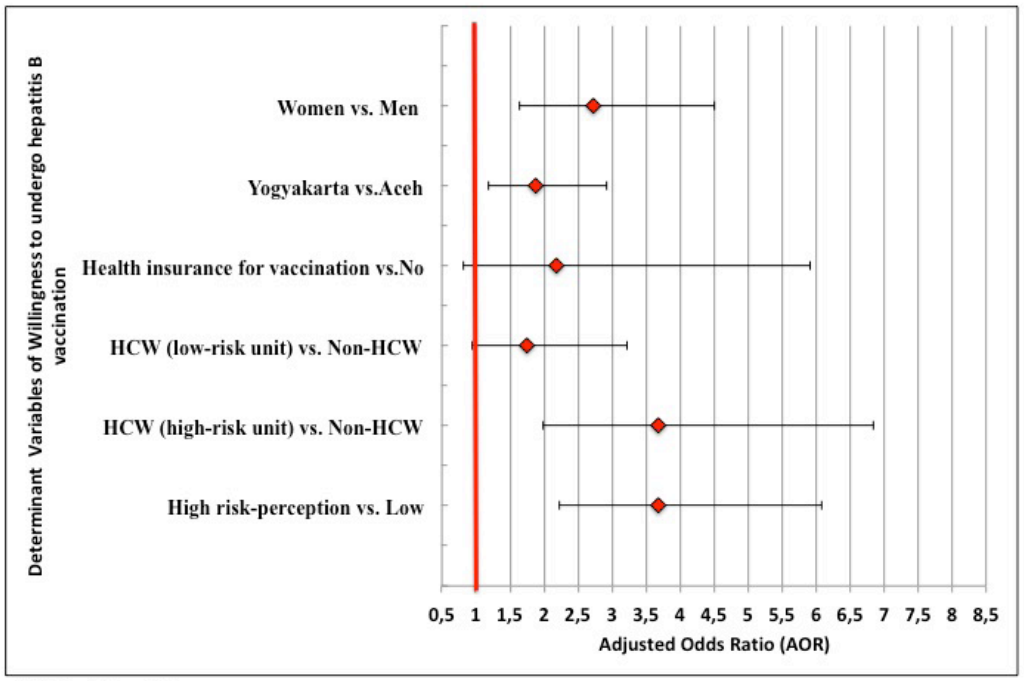

HCW= Health Care Worker

Figure: Final model of willingness to undergo hepatitis B vaccination among adult population in Indonesia

Figure for final model
Final model of willingness to undergo hepatitis B vaccination among adult population in Indonesia

P-02-03

STAAB-COVID-ONE: PRÄVALENZMESSUNG DER INFEKTIONEN MIT SARS-COV-2 BEI EINER KOHORTE DER WÜRZBURGER BEVÖLKERUNG IM RAHMEN DER 1. NACHUNTERSUCHUNG DES STAAB-COVID PROGRAMMS

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[6] Universitätsklinikum Würzburg, Zentrale für Klinische Studien Würzburg, Würzburg Bavaria, Germany
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Introduction

Die STAAB Kohortenstudie (*Häufigkeiten und Einflussfaktoren auf frühe STAdien A und B der Herzinsuffizienz in der Bevölkerung*) untersucht seit 2013 die Häufigkeit und die weitere Entwicklung von frühen Stadien der Herzinsuffizienz in einer Stichprobe von 5000 Einwohnern der Stadt Würzburg (Alter bei Baseline-Untersuchung: 30-79a). Im Rahmen der Substudie STAAB-COVID wurde den Probanden im November 2020 die Teilnahme an einer Erhebung zur Punktprävalenzmessung von SARS-CoV-2 Infektionen in Form eines eigenständigen Nasenabstrichs angeboten.

Methods

Alle Probanden, die sich zur Teilnahme bereit erklärten, erhielten zum 04.11.2020 Test-Kits mit einem 3ml UTM™-Kit-Röhrchen (Copan Italia S.p.A.), einem FLOWSwabs™ beflockten nasophar. Tupfer (Copan Italia S.p.A.), einem verschließbaren Schutzgefäß mit integrierter Saugeinlage (Suesse Labortechnik GmbH & Co. KG), einer Rücksendebox mit UN3373 Kennzeichnung für den Transport von biologischen Stoffen der Kategorie B, einer schriftlichen Anleitung und einem Anleitungsvideolink zur Abnahme eines eigenständigen Abstrichs der mittleren Nasenmuschel.

Results

An 2953 (60%) aller STAAB-Probanden wurden Test-Kits versendet. Bis zum Stichtag der Auswertung am 18.11.2020 erhielt das Studienzentrum 2451 Proben (83%) zurück. Insgesamt wurde bei 6 Proben (0.24%, 95%KI 0.09-0.53%) SARS-CoV-2-RNA nachgewiesen. 5 Personen (83.3%, 95%KI 35.9-99,6%) gaben vor der Testung mittels Abstrich Corona-spezifische Symptome an (Tabelle 1).

Conclusions/Outlook

Gemäß der Ergebnisse unserer Studie gab es zu Beginn der 2. Welle im Würzburger Raum nur ein geringes akutes Infektionsgeschehen mit SARS-CoV-2. Dies deckt sich mit den offiziellen Zahlen zum Infektionsgeschehen zum damaligen Zeitpunkt. Die Ergebnisse müssen jedoch aufgrund der freiwilligen Teilnahme und der untersuchten Altersgruppe vorsichtig interpretiert werden. Trotz logistischer Herausforderungen sind Studien zur Messung der Punktprävalenz im Rahmen von bestehenden Kohortenstudien möglich.

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eTabelle 1

Berichtete Symptome bei Probanden mit positivem Virusnachweis

		Probanden					
		a	b	c	d	e	f
Symptome	Fieber (Temperatur ab 38°C)	-	-	-	-	-	-
	Schüttelfrost	-	-	-	X	-	X
	Husten	-	-	-	X	-	X
	Kurzatmigkeit	-	-	-	-	-	-
	Halsschmerzen	-	X	-	X	-	-
	Verstopfte / laufende Nase	-	-	X	X	-	-
	Appetitverlust	-	-	-	-	X	X
	Übelkeit	-	-	-	-	-	-
	Erbrechen	-	-	-	-	-	-
	Durchfall	-	-	X	-	X	-
	Kopfschmerzen	-	X	-	X	-	X
	Gliederschmerzen	-	-	-	X	-	X
	Müdigkeit / Abgeschlagenheit	-	-	-	X	X	X
	Hautveränderungen	-	-	-	-	-	-
	Abnahme / Verlust des Geruchssinns	-	-	-	X	X	-
	Abnahme / Verlust des Geschmackssinns	-	-	-	X	-	-
	Schmerzen in der Brust / im Brustkorb	-	-	-	-	-	-
	Bewusstseinsstörungen / Verwirrtheit	-	-	-	-	-	-
Anzahl der Symptome		0	2	2	9	4	6

Berichtete Symptome bei Probanden mit positivem Virusnachweis

P-02-04

MERGING CITIZEN SCIENCE WITH EPIDEMIOLOGY: STUDY DESIGN OF A PROSPECTIVE FEASIBILITY STUDY OF HEALTH EVENTS AND AIR POLLUTION IN COLOGNE

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IntroductionIn contrast to environmental science, citizen science (CS) is not well established in epidemiology yet. To investigate if projects with a CS format are feasible as epidemiological studies, we propose the study SMARAGD[1] (**S**ensors for **m**easuring **a**erosols and **rea**ctive **g**ases to **d**educe health effects), using the eResearch tool PIA (Prospective Management and Monitoring - App) and air pollution sensors. The aim is to explore not only the feasibility of this approach but also possible associations between air pollution and respiratory infections to generate first indicative hypotheses.

[1] https://fzj.de/smaragd

Methods

Citizen scientists and researchers discussed the framework of the project in eight workshops to refine content and usability of the questionnaires. In March 2021, recruitment of participants were carried out with the citizens (via snow ball system). Participants use PIA to report their weekly health status focusing on symptoms of acute respiratory infections incl. COVID-19 and other health related factors. The especially developed sensors quantify the air pollution near the participants. Feasibility ought to be measured by participation and compliance to the usage of PIA and maintenance of the sensors.

Results

Of 86 people registered for SMARAGD within 18 days, 40% (n=34) filled out the in-app consent form. Males were 90% (n=27/30), mean age was 54 years and 100% filled out at least one questionnaire.

Conclusions/Outlook

Recruitment of participants is ongoing; during the first weeks more participants asked for study participation than in similar, yet methodological traditional epidemiological studies, which shows the value of CS. Yet, selection bias has to be taken into account. The approach also allowed adjusting the content of the study to the population's interest and needs. CS can help make epidemiology more user-friendly, targeted and meaningful. It also requires a well thought out communication strategy as several aims, needs and resources are joint into one goal.

P-02-05

MONITORING OF STAFF DURING THE COVID-19-PANDEMIC USING A DIGITAL APPLICATION IN HEALTH CARE FACILITIES IN SOUTHERN GERMANY – A STUDY PROTOCOL

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Introduction

By monitoring COVID-19 associated symptoms and risk factors, COVID-19 can be understood better and spread prevented by timely initiated protective measures. RKI recommends for care facilities to monitor and document possible symptoms for staff. To simplify and standardize these processes by using app-based syndromic surveillance, we adapted the eResearch tool PIA (Prospective Monitoring and Management-App). Here, we present the study design, monitoring specifica as well as lessons learned from transferring a research software into a service application.

Methods

The adapted version of PIA includes e.g. daily questionnaires about COVID-19 specific symptoms, contact to SARS-CoV-2 cases, tests or vaccinations as well as data protection compliant signals for the hospital coordination team (ct) if a symptom or a risk factor was reported. ”Signal” in this context means that the ct receives a daily e-mail with information on reported symptoms and can contact participants directly; in addition the applications interface indicates those with relevant reports. Weekly reports are generated to fulfill recommendations. In phase 2, the questionnaires and reports are further adapted for the application in care facilities integrating lessons learned from the pilot phase.

Results

The pilot comprised 14 participants and included 5 physicians, 3 individuals from administration, 1 nurse and 5 others; 11 completed the daily questionnaires with a compliance of ~32% over a median of 35 weeks. PIA was further adapted to increase compliance and will be implemented in care facilities to support symptom-monitoring of staff accompanied by scientific evaluation (phase 2). The main application including the evaluation study will start in summer 2021.

Conclusions/Outlook

Overall, the project pilot showed that it is possible to monitor symptoms of care facility staff using a digital application, making documentation more reliable and easier. In phase 2 we will analyze determinants of adherence, using questionnaires, logs and interviews.

P-02-06

SEROPREVALENCE AND RISK FACTORS FOR HANTAVIRUS-DISEASE AND LEPTOSPIROSIS IN A HANTAVIRUS HIGH-RISK REGION IN LOWER SAXONY, 2019

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Introduction

Hantavirus-disease and leptospirosis are rodent-borne zoonoses, commonly causing unspecific symptoms, with potential severe course. With no human vaccine available in Europe, protective behaviour is essential. We examined risk factors and disease knowledge in residents of a hantavirus (H) high-risk region.

Methods

Patient sera from two general practitioners were tested for IgG antibodies against common H and *Leptospira* (L) strains via ELISA. Questionnaires inquired potential exposures, and associations with serostatus were assessed by calculating adjusted odds ratios (aORs) via multivariable logistic regression analysis.

Results

Of 451 participants aged 18-85 (median: 59) 232 (51.4%) were female. Seroprevalences of 11.1% (8.5-14.4) and 2.5% (1.4-4.5) were found for H and L antibodies respectively. 38% of anti-H IgG positive (pos) but none of the anti-L IgG pos participants had been clinically diagnosed. Frequent exposure to dead rodents (aOR: 3.1; 95%CI: 1.2-8.2) or wood handling (2.8; 1.4-5.8) corresponded with significantly (sig.) higher, living close to water (0.3; 0.2-0.7) with sig. lower odds of pos anti-H IgG. Longer time spent in the forest (9.1; 1.9-44.0) was sig. pos, frequent cleaning of storage rooms (0.3; 0.1-0.95) sig. negatively associated with anti-L IgG. More participants were aware of H than L (92% vs. 14%) but only 22% knew of the disease-specific press releases of their local health authority.

Conclusions/Outlook

We derive recommendations for the public and health authorities: to prevent H-infections keep home and work environments free of rodents and wear protective equipment like gloves and FFP3-masks when handling wood. To prevent L-infections clean storage rooms regularly and avoid contact to material potentially contaminated with rodent urine when in the forest. Local health authorities need to communicate information more efficiently. Increasing awareness of leptospirosis might increase diagnosis and improve secondary prevention.

P-02-07

SEROPRÄVALENZSTUDIE IN HOCHINZIDENZ-GEMEINDEN: CORONA-MONITORING LOKAL

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Introduction

Die COVID-19-Pandemie ist in Deutschland regional und lokal unterschiedlich ausgeprägt. Seroepidemiologische Studien in Hochinzidenz-Gemeinden helfen, den Bevölkerungsanteil mit durchgemachter SARS-CoV-2-Infektion sowie den Untererfassungsfaktor und den Anteil asymptomatischer Verläufe vor Ort abzuschätzen.

Methods

Von Mai bis Dezember 2020 wurden in vier Hochinzidenz-Gemeinden (Kupferzell, Baden-Württemberg; Bad Feilnbach und Straubing, Bayern sowie Berlin-Mitte) jeweils 2.000 Teilnehmende im Rahmen einer Einwohnermeldeamtsstichprobe in einem Studienzentrum oder durch Hausbesuch eingeschlossen. Rachenabstriche wurden mittels PCR auf SARS-CoV-2-Infektion und Blutproben mittels IgG-ELISA und Neutralisationstest auf SARS-CoV-2-Antikörper untersucht. Daten zu assoziierten Faktoren wurden mittels Befragung erhoben und zusammen mit den regionalen Meldedaten analysiert.

Results

Die Responsequote lag in den ersten beiden Studienorten bei ca. 60% und in den weiteren bei ca. 30%. Die gewichtete und für Testeigenschaften korrigierte IgG-Antikörperprävalenz beträgt zwischen 12% (Kupferzell; 95%-KI 10-14%) und 1,7% (Straubing; 95%-KI: 0,9-2,7%). In Kupferzell und Bad Feilnbach wurden keine akuten SARS-CoV-2-Infektionen, in Straubing eine und in Berlin-Mitte 21 nachgewiesen. Der Untererfassungsfaktor war in Kupferzell mit 6,1 (95%-KI 5,2-7,0) am höchsten und in Straubing mit 1,6 (95%-KI 0,9-2,6) am geringsten. Der Anteil der Personen mit asymptomatischem Verlauf lag zwischen 20% (Berlin-Mitte; 95%-KI:10-37%) und 33% (Straubing; 95%-KI: 15-56%).

Conclusions/Outlook

Insbesondere in den ersten drei Studienorten in einer Frühphase der Pandemie zeigte sich, dass SARS-CoV-2-Hochinzidenz-Situationen erfolgreich bewältigt werden können. Die Seroprävalenzstudien haben geholfen, das Ausmaß der Epidemie vor Ort besser abzuschätzen, assoziierte Faktoren für eine Infektion zu ermitteln und somit auch besonders exponierte Gruppen zu identifizieren.

POSTER

P-03 | POSTERSESSION 03

P-03-01

IDENTIFICATION OF LATENT MICROBIAL SUBGROUPS RELEVANT TO DIET AND METABOLIC DISEASE USING A MACHINE LEARNING METHOD

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Introduction

Gut microbiota composition is heavily influenced by diet and appears to play a role in a range of human disease. Although much research has been done in this area, many questions remain. Gut microbiota data sets are often large and complex, presenting a number of statistical challenges. The goal of this analysis was to use a novel machine learning method to identify latent microbial groups in the gut that are relevant to both diet and metabolic disease.

Methods

Microbiota composition was determined using 16S rRNA gene sequencing of one stool sample per participant in the population-based KORA FF4 study. The study sample size for this analysis was 1992 participants. Latent Dirichlet allocation (LDA) was implemented to identify 20 microbial subgroups within the data set that can be used to describe each individual's microbiota composition. Associations between metabolic diseases and subgroups and habitual dietary intake and subgroups were evaluated using multivariate Dirichlet regression models.

Results

Twenty distinct microbial subgroups were identified, a unique combination of which can be used to describe each participant's microbiota composition. After adjustment for multiple testing, eleven of 20 subgroups were significantly associated with at least one metabolic disease or risk factor, while eight subgroups were significantly associated with habitual diet. Subgroups 5 and 14 had the strongest diet and disease associations.

Conclusions/Outlook

Latent Dirichlet allocation is a powerful method for use in microbiome data analysis and is able to cope with many of the statistical difficulties of microbiome data. Associations between metabolic diseases and habitual diet and microbial subgroups identified by LDA expand upon current knowledge of host-microbiome relationships. These results also indicate the promising potential of latent subgroups to be implemented as markers of disease risk/progression or targets for modulation.

P-03-02

OPTIMIZATION OF METABOTYPE BY USING FEW STANDARD BIOCHEMICAL AND ANTHROPOMETRIC PARAMETERS

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Introduction

Previous studies have identified metabotypes using several parameters from different metabolic pathways, which has limited its use in general research and primary care settings. Thus, this study aimed to identify metabotypes based on few routinely measured parameters in the context of cardio-metabolic diseases.

Methods

We used k-means cluster analysis to assign 3001 adults from the KORA F4 study into three metabolic clusters based on selected parameters. Seven parameters were selected by using machine learning-based feature selection methods. Based on the unique combination of selected parameters we identified several metabotype models. Metabotype models were compared based on their ability to detect the incidence of cardio-metabolic disease in a seven-year follow-up, the KORA FF4 study.

Results

We selected the two best models, i.e. the models with the highest incidence of metabolic or cardiovascular diseases in the unfavorable metabotype cluster (cluster 3). The selected model for metabolic diseases comprised five parameters (glucose, HDLc, non-HDLc, uric acid, BMI) and had the highest incidence of any metabolic disease (62%) in cluster 3. Similarly, the best model for cardiovascular diseases included four parameters (glucose, HDLc, non-HDLc, TG), with the highest incidence of cardiovascular disease (9.1%) in cluster 3. Moreover, participants in cluster 3 of both models revealed increased plasma concentrations of biochemical parameters, and had more unfavorable socio-demographic and lifestyle characteristics.

Conclusions/Outlook

We identified two valid metabotype solutions based on five and four commonly available biochemical and anthropometric parameters. Thus, identified optimized metabotypes can be easily applied in the general population on large scale to identify subpopulations with a high risk of cardio-metabolic diseases. Also, they can be used as a tool to develop targeted preventive measures and lifestyle interventions.

P-03-03

ASSOCIATIONS OF PLASMA BORON LEVELS WITH PATTERNS OF FOOD INTAKE, ANTHROPOMETRIC AND CARDIOMETABOLIC CHARACTERISTICS AND KIDNEY FUNCTION IN A GENERAL POPULATION SAMPLE

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Introduction

Evidence suggests positive effects of a boron-rich diet on human health, while the effects on kidney function are inconclusive. As human data are still scarce, we aimed to identify correlates of plasma boron levels in the general population.

Methods

In a community-based sample (n=899, 57% men, age: 61±13 y), plasma boron levels (median (IQR): 33.8 µg/L (25.6; 44.7)) were measured by inductively coupled plasma-mass spectrometry. Overall (PDI), healthy (hPDI) and unhealthy plant-based dietary indices (uPDI) were derived from food frequency questionnaire. Reduced rank regression (RRR) yielded a dietary pattern explaining 29% of the variation of circulating boron. Multivariable-adjusted linear regression analysis was conducted to identify potential correlates of boron levels.

Results

The RRR pattern was characterized by high intake of fruits, nuts/seeds, wine and low intake of poultry, processed meat, margarine, soft drinks, snacks. 10-pt increases in PDI, hPDI and uPDI were associated with an 8.7% (95%CI: 4.2; 13.4), 10.4% (6.6; 14.3) and -8.8% (-12.1; -5.4) (all $P<0.001$) change in plasma boron levels, respectively. Doubling of boron levels was related to a decrease in BMI, waist-to-hip ratio and C-reactive (CRP) protein by -1.62 kg/m² (-2.17; -1.08), -0.017 cm (-0.024; -0.009) and -14.1% (-23.3; -3.7) (all $P<0.01$), but with adverse changes in creatinine (0.05 mg/dL (0.04; 0.07)) and estimated glomerular filtration rate (-4.12 mL/min/1.73 m² (-5.54; -2.70; both $P<0.001$)), respectively. Associations persisted after additional adjustment for dietary indices/pattern as surrogates for boron intake. Only the relation of circulating boron with CRP was attenuated after adding the RRR pattern as confounder. Plasma boron levels were not linearly associated with HbA1c, plasma glucose levels and blood pressure.

Conclusions/Outlook

While higher plasma boron levels might protect from adiposity, they simultaneously might have adverse effects on kidney function.

P-03-04

VITAMIN B6 STATUS UND VEGETARISCHE ERNÄHRUNG: ERGEBNISSE EINER POPULATIONSBASIERTEN STUDIE

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Introduction

Pflanzenbasierte Ernährung wurde innerhalb der letzten Jahre populärer, jedoch weist Vitamin B6 aus pflanzlichen Lebensmitteln teilweise eine niedrigere Bioverfügbarkeit als aus tierischen Produkten auf. Bislang fehlen ausreichende Vergleichsstudien zu objektiv gemessenem Vitamin B6 zwischen Vegetarier:innen und Nicht-Vegetarier:innen. In dieser Studie wurde der Vitamin B6 Status unter Vegetarier:innen, Pescetarier:innen, Flexitarier:innen und Fleischesser:innen, basierend auf der populationsbasierten NHANES Studie (National Health and Nutrition Examination Survey) (Zyklen 2007-2008 und 2009-2010), untersucht.

Methods

Die mittels High Performance Liquid Chromatography (HPLC) gemessenen Serumwerte für Pyridoxal-5'-Phosphat (PLP) und 4-Pyridoxinsäure (4PA), sowie Daten zur Ernährung aus 24-Stunden-Protokollen und Fragebögen, lagen für 8.698 Personen im Alter von 20-80 Jahren vor.

Results

Die geometrischen Mittelwerte (±Standardfehler) der PLP Konzentrationen lagen unter den Vegetarier:innen, Pescetarier:innen, Flexitarier:innen und Fleischesser:innen bei 58,2±6,0, 52,1±3,7, 49,2±4,6 und 51,0±1,1 nmol/L. Die 4-PA Werte lagen entsprechend bei 32,7±4,0, 29,0±2,5, 34,8±5,6 und 33,0±0,7 nmol/L. Aus multiplen linearen Regressionsanalysen ergab sich hinsichtlich der PLP und 4-PA Serumwerte, oder deren Verhältnis, kein signifikanter Unterschied zwischen den verschiedenen Gruppen. Insgesamt erwies sich die Einnahme von Vitamin B6 Supplementen, gefolgt von Vitamin B6 aus der Nahrung, als der stärkste Prädiktor des Vitamin B6 Status. Interessanterweise zeigte sich für diverse andere Faktoren, vor allem für die Serumkonzentrationen von Albumin, Kreatinin und alkalischer Phosphatase, ein signifikanter Zusammenhang mit den Vitamin B6 Parametern. Diese sollten daher bei der Erhebung des Vitamin B6 Status mit in Betracht gezogen werden.

Conclusions/Outlook

Zusammenfassend wurde gezeigt, dass eine vegetarische Ernährungsweise kein Risiko für einen schlechteren Vitamin B6 Status darstellt.

P-03-05

KURZ- UND VERZWEIGTKETTIGE FETTSÄUREN ALS MARKER FÜR DIE MIKROBIOTA-AKTIVITÄT IM STUHL VON VEGANERN UND MISCHKÖSTLERN

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Introduction

Eine vegane Diät, die häufig durch eine höhere Ballaststoff- und geringere Proteinzufuhr als eine Mischkost gekennzeichnet ist, kann die Zusammensetzung der Darmmikrobiota und bakterieller Metabolite wie kurzkettige (SCFA) und verzweigtkettige (BCFA) Fettsäuren beeinflussen. Ziel dieser Studie war der Vergleich der Konzentrationen von SCFA, BCFA und Ammonium und des pH-Werts im Stuhl von Veganer*innen und Mischköstler*innen. Zudem wurde die Zusammensetzung der Darmmikrobiota in Bezug zu den S/BCFA-Konzentrationen untersucht.

Methods

36 Veganer*innen und 36 Mischköstler*innen wurden in die Querschnittsstudie „Risiken und Vorteile einer veganen Ernährung“ eingeschlossen. Die Ernährung wurde mittels 3-Tage Wiegeprotokoll erfasst. In vollständigen Stuhlproben wurde die Mikrobiota-Zusammensetzung, SCFA-, BCFA- und Ammonium-Konzentrationen sowie der pH-Wert analysiert. Mittels *Random Forest Regression* (RFR) wurden Bakterien identifiziert, die S/BCFA-Konzentrationen Diät-abhängig vorhersagen

Results

Veganer*innen nahmen mehr Ballaststoffe als Mischköstler*innen auf ($p < 0.0001$). Keine signifikanten Unterschiede in den S/BCFA-Konzentrationen konnten zwischen beiden Gruppen beobachtet werden. Ammonium-Konzentrationen und pH-Wert waren bei veganer Ernährung signifikant niedriger als bei Mischkost. Die Shannon Diversität war auf Artenebene bei Mischkost höher als bei veganer Ernährung ($p = 0.04$). Bei veganer Ernährung war ein Cluster von *Faecalibacterium prausnitzii*, *Prevotella copri*, *Dialister* spp. und *Eubacterium* spp. prädiktiv für S/BCFA. Bei Mischkost waren *Bacteroides* spp., *Clostridium* spp., *Ruminococcus* spp. und *Prevotella copri* prädiktiv.

Conclusions/Outlook

Trotz höherer Ballaststoff-Aufnahme mit der veganen Diät im Vergleich zur Mischkost konnten keine signifikanten Unterschiede in den S/BCFA-Konzentrationen festgestellt werden. Die Ergebnisse der RFR lassen vermuten, dass sich der bakterielle Metabolismus an die unterschiedliche Nährstoffverfügbarkeit bei veganer Ernährung und Mischkost anpassen kann.

P-03-06

DATA-DRIVEN DESIGN OF A WEB-BASED, SELF-ADMINISTERED FOOD FREQUENCY QUESTIONNAIRE FOR ADULTS IN SWITZERLAND

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Introduction

Diet is linked to human health and chronic disease risks, making dietary assessment crucial in nutrition research and epidemiological studies. Web-based food frequency questionnaires (FFQ) have the potential for semi-automated, cost-efficient and flexible dietary data collection while limiting the burden for participants. The aim of the study was to design a web-based FFQ for dietary assessment of adults in Switzerland.

Methods

Data from 24-h dietary recalls of 2085 participants from the Swiss National Nutrition Survey menuCH and the framework of an existing FFQ (ZHAW-FFQ) were used to develop the FFQ. Foods were grouped and a forward stepwise regression approach was conducted to identify the food items that explain >80% of the between-person variation in intake of energy and six nutrients (carbohydrates, fiber, fat, saturated fatty acids, protein and vitamin C) for the overall cohort and by language region. Portion size information was obtained by calculating the median portion size per eating occasion.

Results

The 3904 food codes reported in the menuCH survey were grouped into 166 conceptually similar food items, of which about 100 were identified for inclusion in the FFQ. For about 40 of them, a portion size photo was selected to be graphically displayed in the FFQ. Nine response categories, ranging from “never” to “more than six times a day”, were selected to measure frequency of consumption during the previous month.

Conclusions/Outlook

Once validated, the FFQ will allow for the classification of individuals based on their dietary intake. This web-based tool will enable rapid and flexible collection of dietary data in studies in Switzerland that can serve as a basis for dietary recommendations and concrete action strategies at the individual and at the national level.

P-03-07

DOES DIET MAP WITH MORTALITY? ASSOCIATION BETWEEN DIETARY PATTERNS AND CHRONIC DISEASE MORTALITY IN SWITZERLAND

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Introduction

Important geographic variation in chronic disease mortality is observed across Switzerland. The reasons behind it are not fully understood, but differences in dietary patterns might help to elucidate this variation. The study aimed therefore at investigating the associations between dietary patterns and chronic disease mortality in Switzerland using an ecologic design.

Methods

Hypothesis-driven (Alternate Healthy Eating Index) and data-driven dietary patterns were computed using data of the cross-sectional National Nutrition Survey menuCH (*n*=2,057). Standardized mortality ratios were calculated at district-level using mortality data of the Federal Statistical Office and were linked to dietary data geographically. Quasipoisson regression models were fitted to investigate the associations between dietary patterns and chronic disease mortality.

Results

Compared to the first quintile, the fifth quintile of the Alternate Healthy Eating Index was associated with standardized mortality ratios (95% confidence interval) of 0.95 (0.93-0.97) for cardiovascular disease, 0.99 (0.98-1.00) for all-cancer, and 0.93 (0.89-0.96) for diabetes. Additionally, the Swiss traditional and Western-like patterns were associated with significantly higher standardized mortality ratios for cardiovascular disease and diabetes (ranging from 1.02 to 1.08) compared to the Prudent pattern, and no significant associations were observed for all-cancer.

Conclusions/Outlook

Our results suggest that dietary patterns contribute to the explanation of geographic disparities in chronic disease mortality in Switzerland such that significant associations were observed between dietary patterns and chronic disease mortality. National nutrition surveys as menuCH are crucial to investigate the dietary habits of a given population. Prospective studies with dietary and mortality information at the individual level should be conducted in Switzerland to support the associations observed in the present study.

P-03-08

ASSOCIATION OF BODY MASS INDEX WITH PHYSICAL FITNESS AMONG SMALL-HOLDER FAMERS IN MALAWI AND KENYA

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Introduction

Double burden of malnutrition (DB) which is characterized by the co-existence of various forms of under- and overnutrition is a common health problem predominantly affecting households in low- and middle- income countries. This study investigated whether DB affects the physical fitness of affected households.

Methods

Cross-sectional surveys were conducted in 2017 in Kenya and Malawi targeting households with children below six years of age (n=432 and n=355, respectively). Anthropometric measurements were taken from mother-child pairs. Hand-grip-strengths (HGS) for the mother was measured and used as a proxy indicator for physical fitness. Anthropometric data was used to identify households with double-burden of malnutrition. Mean HGS of the mothers was determined and comparisons made between mothers living in households with (case) and without DB (comparison group). The comparison group were differentiated in households with only one and without any form of malnutrition.

Results

The body-mass-index (BMI) and HGS of the women in Malawi were significantly correlated ($p < 0.05$). There were significant differences between women's HGS of case-households with women's HGS living in a household with an overweight/obese family member. In Kenya, a significant but weak non-linear correlation ($p < 0.05$) was identified between women's HGS and BMI. HGS was lower among underweight and obese women compared to normal weight, but no differences were found between DB and non-DB households.

Conclusions/Outlook

The results of the countries vary in form and significance. Programmes are needed in both countries addressing double-burden of malnutrition although a link between HGS and double burden was not proven. However, underweight and overweight women showed lower physical capacity. There is thus a link between the HGS and BMI that may impact on health resulting in lower physical fitness.

This study was conducted within the HealthyLAND project which was funded by BMEL/ptble. The authors declare no conflict of interest.

POSTER

P-04 | POSTERSESSION 04

P-04-01

RELATIONSHIP BETWEEN EDUCATIONAL LEVEL, HEALTH LITERACY AND SELF-REPORTED HEALTH STATUS IN AN ADULT GERMAN POPULATION

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Introduction

Previous research on health inequalities has demonstrated a strong association between educational level and poorer health status, however, only few studies have examined the possible contribution of health literacy (HL) to this relationship. We aimed to study whether HL could be a pathway by which educational level affects health status in an adult German population.

Methods

HL was assessed with the short version of the European Health Literacy Survey (HLS-EU-Q16) in the baseline examination of the German National Cohort (GNC) of the study center in Halle (Saale). Educational level was classified according to the International Standard Classification of Education (ISCED-97). Using structural equation modeling (SEM), we modeled HL as a mediator of the relationship between educational level and self-reported general health as measured by the Short Form-12 while controlling for age and sex. Further, we analyzed the effect modification of the association between HL and health status by educational level using multiple linear regression.

Results

4,692 participants were included in the study (52.2% female; mean age 50.5±12.2). In SEM, educational level had both a direct (standardized -=0.136; 95% confidence interval (CI) 0.11-0.16) and an indirect effect mediated by HL (standardized -=0.017; 95% CI 0.01-0.02) on health status. In addition, HL was directly related to health status (standardized -= 0.170; 95% CI 0.14-0.20). HL had a slightly stronger effect on health status among the participants with low and middle educational level, compared to those with high educational level.

Conclusions/Outlook

We showed that while HL acts as a partial mediator between educational level and health status, it explains only 11% of the effect associated with educational level. On the other hand, HL itself has a direct effect on health status, independently of educational level, and thus directly addressing HL can potentially improve health status.

P-04-02

ANIMALS IN HIGHER EDUCATION SETTINGS: DO ANIMAL-ASSISTED INTERVENTIONS IMPROVE MENTAL AND COGNITIVE HEALTH OUTCOMES OF STUDENTS? A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction

Due to the high burden of mental health issues among higher education students world-wide, universities are increasingly offering animal-assisted interventions (AAIs) to relieve student stress. To date, no systematic review of the effects of AAIs on mental and cognitive outcomes of students exists.

Methods

Randomized controlled trials (RCTs) using any unfamiliar animal as the sole intervention tool were included in this systematic review. Where possible, effect sizes (Hedges' g) were pooled using random-effects meta-analyses. Albatross plots were used to supplement the data synthesis and to conduct sub-group analyses. Study quality was assessed using the Cochrane risk-of-bias tool.

Results

Of 2.494 identified studies, 35 RCTs were included. Studies showed a clear reduction of anxiety (g= -0.57 (95%CI -1.45;0.31)) and short-term stress. For other mental outcomes, studies varied between showing no effect and small reductions of negative affect (g= -0.47 (95%CI -1.46;0.52)), long-term stress (g= -0.23 (95%CI -0.57;0.11)) and depression, as well as no effect and increases of arousal, happiness and positive affect (g= 0.06 (95%CI -0.78;0.90)). Studies showed no effect on heart rate and heart rate variability, a small reduction in salivary cortisol and mixed effects on blood pressure. No effect on cognitive outcomes was found. Sub-group analyses suggested that interventions including a stress-inducing element tended to have less of an effect than interventions without. The quality of included studies was moderate.

Conclusions/Outlook

Overall, evidence suggests that AAIs are effective at improving mental, but not physiological or cognitive outcomes of students. However, strong heterogeneity between studies and the small number of studies available for some outcomes limited the ability to draw clear conclusions. In addition, the methodology used for the sub-group analyses had significant limitations. More research is needed to confirm the trends found in this review.

P-04-03

LANGZEITFOLGEN VON COVID-19 BEI BESCHÄFTIGTEN IM GESUNDHEITSDIENST

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Introduction

Die SARS-CoV-2-Pandemie hat zahlreiche Infektionen bei Beschäftigten im Gesundheitsdienst und der Wohlfahrtspflege verursacht. Inzwischen mehren sich die Berichte über Langzeitfolgen einer COVID-19-Erkrankung, in denen Betroffene leichte Beschwerden bis zu starken gesundheitlichen Einschränkungen angeben. Ziel der Studie ist die Erfassung von Erkrankungsverläufen und möglichen Langzeitfolgen von COVID-19.

Methods

Im Februar 2021 wurden 4300 Versicherte der Berufsgenossenschaft für Gesundheitsdienst und Wohlfahrtspflege (BGW) mit einer Verdachtsanzeige auf eine beruflich bedingte COVID-19-Infektion angeschrieben. Anhand eines Fragebogens wurden Angaben zu Tätigkeit, Risikofaktoren, Symptomen, zum Gesundheitszustand und andauernden Beschwerden sowie zur Leistungsfähigkeit und psychischen Gesundheit erhoben. Erste vorläufige Auswertungen für 665 Teilnehmer werden im Folgenden dargestellt, der Einschluss ist noch nicht abgeschlossen.

Results

Die Mehrzahl der Studienteilnehmer sind weiblich und haben eine pflegerische Tätigkeit im Krankenhaus oder der stationären Altenpflege ausgeübt. Eine stationäre Behandlung war bei 8% erforderlich. Die Ergebnisse zeigen, dass schwer ausgeprägte Symptome auch ein Jahr nach der Infektion bestehen können. Das betrifft vor allem Kopfschmerzen, Kurzatmigkeit, Verlust des Geruchs-/Geschmackssinns, Konzentrations- und Gedächtnisprobleme sowie Müdigkeit und Erschöpfung. Die aktuelle Arbeitsfähigkeit hat im Vergleich zur Zeit vor der COVID-19-Infektion bei vielen Befragten deutlich abgenommen. Eine stationäre Reha-Maßnahme wurde von 4,5% durchgeführt, den Wunsch für eine Reha äußerten 37%.

Conclusions/Outlook

Mit dieser Studie soll ein besseres Verständnis über die Erkrankung, deren Schwere und Dauer sowie ihrer Auswirkung auf die Lebensqualität nach einer überstandenen COVID-19-Infektion gewonnen werden. Für die Längsschnittbetrachtung wird die Erhebung nach sechs und zwölf Monaten wiederholt.

P-04-04

IMPLEMENTATION OF DIABETES MELLITUS (DM) AND TUBERCULOSIS (TB) CARE INTEGRATION, TREATMENT COVERAGE, AND HEALTHCARE WORKERS (HCWS) SATISFACTION AND STAFFING NEEDS IN DM AND TB CARE SERVICES IN HOSPITALS IN MALAWI

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Introduction

There are efforts in low and middle-income countries (LMICs) to integrate TB and Diabetes mellitus (DM) care services as encouraged by World Health Organisation (WHO). However, evidence on the actual implementation of integration, associated workload staffing needs, and health workers' (HCWs) satisfaction in TB and DM care services in most LMICs is scarce.

Methods

Through interviews, direct observation of interactions between HCWs and patients during appointments, and retrospective patients' data analysis, a descriptive study was conducted at 8 hospitals in Malawi to assess the implementation of ongoing integration efforts, treatment coverage, associated staffing needs, and HCWs satisfaction in DM and TB care. Coverage of PWD was estimated by calculating the proportion of total registered patients over 5.6% of the target population (25-64 years) as expected national DM prevalence (Msyamoza et al 2011).

Results

Of 42 HCWs interviewed, 26/42(61.9%) were males. On implementation of integration efforts, we found that 1/8 (12.5%) hospital was operating DM/TB bidirectional screening, TB/ DM combined clinics, and operating daily clinic services; 5/8 (62.5%) had scheduled full day scheduled clinics and three were operating half-day DM clinics. Coverages of expected PWD on care was 6.7% at a fully integrating hospital and ranged from 0.5% to 9.9% at low or non-integrating hospitals. Staff satisfaction was moderate, staffing was satisfactory, and full-time staff would need to increase by 41% if WHO standards (WHO, 2013) of DM care coverage were to be met.

Conclusions/Outlook

TB/DM care services integration requires a wide spectrum of measures and different indicators should be considered in the assessment. We found higher coverage of PWD on care at one hospital implementing more integration measures in comparison to most hospitals that did not implement integrated DM and TB care. As the enrolment of PWD into care increases, health workforce demand will increase significantly in Malawi.

P-04-05

TEACHING DATA ANALYSIS TO MEDICAL STUDENTS USING R: 10 YEARS OF EXPERIENCE WITH AN ELECTIVE COMPUTER LAB AT HEIDELBERG UNIVERSITY

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Introduction

Biometry has been a mandatory part of medical studies for many years. Teaching this topic to medical students, who do not necessarily feel close to quantitative sciences but may need pertinent skills, for example, for epidemiological thesis projects, can be challenging. The present report describes 10 years of experience with an elective computer lab in practical data analysis for medical students at Heidelberg University.

Methods

The original elective was designed as a 30 units course systematically covering all common descriptive and confirmatory statistical methods, with weekly 90 minutes sessions, each consisting of frontal introductions followed by computer-based exercises using R. Later modifications were driven by participant feedback and insights from higher education didactics courses. The evolution of the course contents, example course materials, participants´ perceptions, and lessons learned are presented.

Results

The initial course contents were tidied out by rigorously applying competence-based learning objectives. Teaching methods were diversified to activate different learner types. The elective was furthermore modified to be given as a block course to intensify the learning experience and interpersonal exchange. Together with participants, materials that could well be taught in an online fashion were identified and a blended learning setup was realized using Moodle. This was perceived as the most efficient and rewarding option by participants and the teacher. In 2020, the course had to be transformed into an online-only format. This increased participant numbers, but course completion rates decreased and participant feedback became more mixed. Technical difficulties were encountered hampering an optimal course design in an online-only setting.

Conclusions/Outlook

Teaching applied statistics to medical students using R is feasible and can be a mutually rewarding experience. The subject lends itself to a blended learning approach, whereas an online-only format may be disadvantageous.

P-04-07

PROMOTING HIGHLY MOTIVATED MEDICAL STUDENTS TO WORK IN RESEARCH: THE TRANSLATIONAL MEDICINE SUPPLEMENTARY AND MASTER PROGRAM OF THE UNIVERSITY OF WÜRZBURG

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Introduction

The complexity of translating new findings from basic science into clinical research or from clinical research into clinical practice at the population level requires excellently trained physicians. They have to evaluate and optimize prevention, diagnostics and therapy and formulate precise and applicable clinical research questions. They should take promising findings from the whole spectrum of life sciences and promote their implementation in medicine.

Methods

The Medical Faculty of the University of Würzburg (JMU) established a program for promoting scientifically high-qualified medical students, even before the completion of their medical degree. In 2018 the study program Translational Medicine (TMed) was developed, based on the concepts of two previously established programs, Experimental Medicine and Clinical Research and Epidemiology. TMed is funded by the Elite Network of Bavaria. The course can be completed either as supplementary course, parallel to the medical studies, or as a dedicated Master program for graduated physicians.

Results

Up to now, 108 students enrolled in the supplementary course and 13 in the Master program. TMed offers different modules, ranging from molecular oncology, infectiology, or stem cell biology to biometric and epidemiologic methods, evidence-based medicine and medical informatics. In addition, the students have to complete two research internships and modules in the field of professional development. The flexible curriculum allows for an interest-driven focus within the course offerings. Recently, an external expert commission has reviewed TMed and strongly endorsed the continuation of funding.

Conclusions/Outlook

TMed addresses current discussions about the education of medical students, as well as of the further training of clinician scientists in Germany. An early identification and intensive support of highly motivated medical students is of great importance, in particular for promoting Clinician Scientists.

Grafik auf folgender Seite

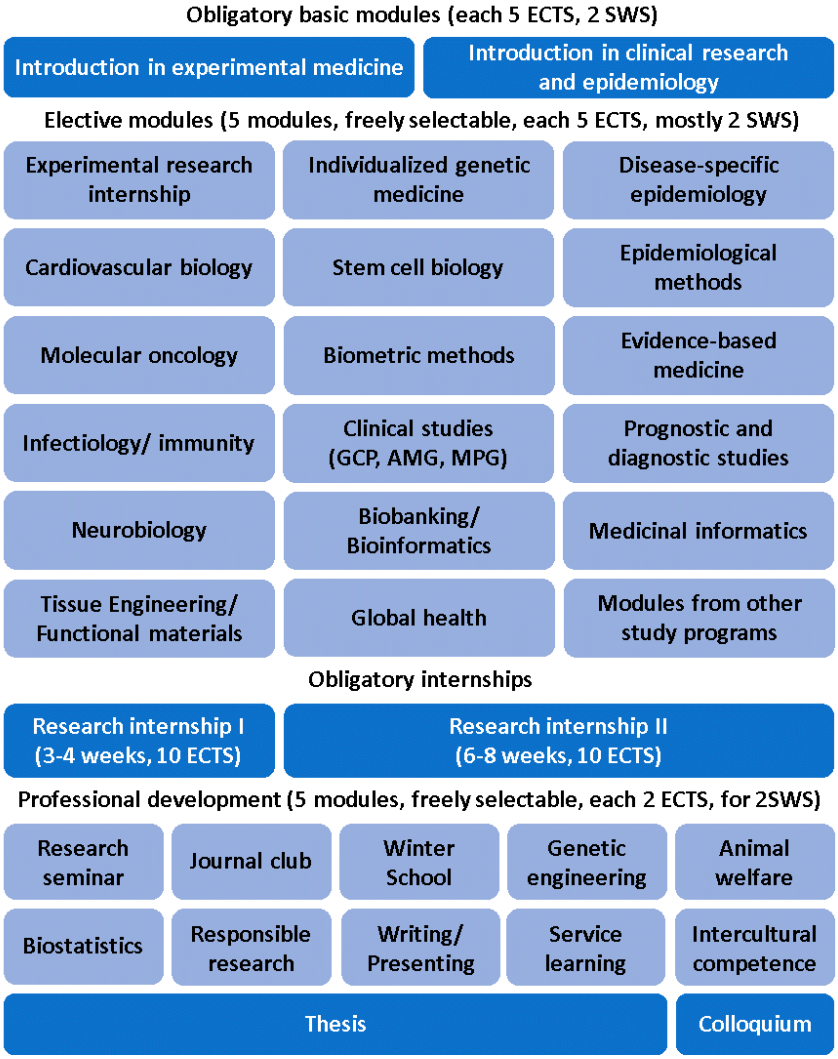

Figure 1
Curriculum of the TMed study program.

POSTER

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P-05-01

INTERVALLFASTEN FÜHRT IN DER ALTERSGRUPPE „45-PLUS“ ZUR ABNAHME VON KÖRPERGEWICHT UND BAUCHUMFANG

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Introduction

Regelmäßigen täglichen Esspausen von mindestens 16 Stunden werden positive Effekte auf Stoffwechsel, Körpergewicht und Allgemeinbefinden nachgesagt.

Methods

Untersucht wurde die Wirksamkeit der 16:8-Methode über vier Wochen unter Real-Life-Bedingungen bei 46 bis 78-Jährigen im Rahmen eines Vorher-Nachher-Vergleichs. 74 Probanden*innen (BMI ≥ 18,5 kg/m2) nahmen an der Studie teil. Primäre Endpunkte waren die Gewichtsreduktion sowie die Abnahme des Bauchumfangs. Zur Beurteilung der körperlichen und psychischen Gesamtverfassung wurden Ruhepuls, Blutdruck und das allgemeine Wohlbefinden erfasst. Alle Parameter wurden durch Selbstmessungen der Probanden erhoben.

Results

Nach vier Wochen hatten 66 von 74 Teilnehmern Gewicht verloren (89,2%). Die mediane Gewichtsabnahme betrug bei den Frauen 1,4 kg und bei den Männern 1,9 kg. Insgesamt 37 Teilnehmer*innen (50 %) nahmen zwischen 1,5 und 6 kg ab. Während alle Männer an Gewicht abnahmen, zeigte sich bei jeweils drei Frauen eine Gewichtsneutralität bzw. eine Gewichtszunahme von bis zu 1 kg.

Nach vier Wochen hatte sich der Bauchumfang bei 59 von 74 Teilnehmer*innen verringert (79,7%). Der mediane Bauchumfang verringerte sich bei den Frauen um 2,0 cm und bei den Männern um 2,3 cm. Bei 42 Frauen (78%) und bei 15 Männern (75 %) lag die Abnahme des Bauchumfangs zwischen 1 und 8 cm. Bei 11 Probanden erfolgte keine Abnahme des Bauchumfangs und bei 2 Probanden wurde eine Zunahme von maximal 1 cm beobachtet.

Die Vitalparameter zeigten keine relevanten Veränderungen.

Die Hälfte aller Teilnehmer (51,4 %) berichtete über temporäre Befindlichkeitsstörungen.
Zwei Probanden (2,7 %) haben die Studie aufgrund medizinischer Gründe abgebrochen.

Die Fasten- bzw. Essintervalle (von 16:8 Stunden) wurden an 86 % aller Studientage eingehalten.

Conclusions/Outlook

Eine Gewichtsreduktion von 1,5 bis 2 kg pro Monat gilt gemäß DAG-Leitlinie als relevanter Abnehmerfolg und trägt in Verbindung mit einer Reduktion des Bauchumfangs zu einer Verminderung des kardiometabolischen Risikos bei.

P-05-02

RELEVANCE OF MEAL TIMING INDEPENDENT FORM TOTAL ENERGY INTAKE ON BMI IN EUROPEAN CHILDREN USING COMPOSITIONAL DATA ANALYSIS: RESULTS FROM THE CHILDHOOD OBESITY PROJECT (CHOP) – STUDY

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Introduction

It is unclear if timing of energy intake during the day is relevant for weight control. We examined the effect of meal timing by relative energy intake at eating occasions (EO) on BMI-zscore (zBMI) in a longitudinal study in European children from 3 to 8 yrs. Compositional data analysis allows to estimate the simultaneous effect of different EO independent of TEI.

Methods

Within the CHOP-study 3-days weighted food protocols and zBMI were collected at 3, 4, 5, 6 and 8 yrs from subjects in Belgium, Germany, Italy, Poland and Spain. Food intakes were assigned to EO based on country-specific times of the day. Caloric intake at EO (breakfast, lunch, supper, snacks) were analysed as a composition in which parts add to 100% of the average total energy intake (TEI) per day. EO were sequentially rotated in the order of breakfast, lunch, supper and snacks via an isometric log-ratio transformation that created 3 variables from 4 rotated settings. These transformed variables were added as exposure variables to linear mixed effects models with zBMI as outcome and a subject-specific intercept and slope varying with age. All models were further adjusted for parental BMI, misreporting, TEI, country and the interaction of TEI and country. Exclusion of subjects with less than 3 time points and exclusion of influential observations were examined in sensitivity analyses as well as stratified analyses by country to better account for differences in day time of the meals.

Results

Data from 730 healthy children (52% girls) were analysed. The portion of energy was consumed within a day as follows (m±sd): breakfast (18.5%±6.5), lunch (30.1%±8.1), supper (25.2%±7.9) and snacks (26.1%±10.6). No significant effects of EO on zBMI were found. Furthermore, the stratified analysis and the sensitivity analyses revealed no significant effects of EO on zBMI in children.

Conclusions/Outlook

The timing of energy intake during the day seems to have no effect on the BMI of children.

P-05-03

PROGRAMMED TO BE SHORT? THE PATHWAYS FROM RAMADAN DURING PREGNANCY TO HEIGHT GROWTH IMPAIRMENT

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Introduction

Child linear growth is a multifactorial process with prenatal and postnatal risk factors. Ramadan during pregnancy is associated with lower adult height (Van Ewijk et al., 2013). Yet, the dynamics behind this association have remained unexplored. I focus on children to explore at which age effects appear and if Ramadan during pregnancy is associated with risk factors for impaired growth such as infectious disease susceptibility. Growth might also be compromised in favor of earlier maturation to ensure reproduction due to an increased mortality pressure among the exposed.

Methods

I use individual-level data on 2-19 years old Muslim children from the Indonesian Family Life Survey. Children's height is transferred to height-for-age z-scores. Using mother-fixed-effects, I estimate the association between Ramadan during pregnancy and height-for-age z-scores, as well as the risk of experiencing infectious diseases. Interaction terms between exposure and sanitary standards are used to explore if effects vary by postnatal living conditions. Using a sample of adult Muslim women, the effects on maturation are explored. The control group are Muslims without prenatal exposure to Ramadan.

Results

Prenatally exposed 15–19-year-olds show lower height-for-age z-scores than their non-exposed peers (-0.092, $P<0.05$). There are no associations in younger age groups. The effects are concentrated among those with postnatal access to inadequate sanitation. Exposed children have higher risks of experiencing respiratory diseases, mainly when exposure occurs periconceptionally (OR: 1.361, $P<0.01$). Prenatally exposed women are younger at first childbirth (-197 days, $p<0.05$), but there are no effects on age at menarche.

Conclusions/Outlook

Ramadan during pregnancy might lead to growth impairment via a weakened immune system. Since the materialization of the effects seems to co-depend on postnatal conditions, future research in the field of fetal programming is encouraged to consider both prenatal and postnatal risk factors.

P-05-04

ALCOHOL CONSUMPTION PATTERNS – FIRST RESULTS OF THE FOODCOVID-19 ONLINE STUDY

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Introduction

The "Food systems in times of COVID19" project aimed to identify how the observed constraints put in place during the first phase of the COVID-19 pandemic affect the dietary behaviour of populations across the globe. Here, special attention was paid to the alcohol consumption.

Methods

An online survey on Food and COVID-19 was conducted using a semi-structured questionnaire translated into several languages. Regression models were calculated to evaluate changes in consumption patterns and to test potential determinants for the changes. For information on reasons for changes open ended questions were analysed qualitatively.

Results

Out of the 1042 participants, 718 responded to the questions on alcohol consumption. Individuals that were no longer affected by a lockdown had a 2.7 times higher chance of increasing their alcohol intake compared to individuals that were not in a lockdown (ORad=2.65, 95% CI=1.26-5.60, p=0.011); adjusted for age, gender and income regions. The individuals who experienced a curfew at night had a 5.7 times greater chance of reducing their alcohol consumption (ORad=5.72, 95%CI=1.25-26.10, p=0.025). The proportion of people who drank less alcohol in the group that experienced a curfew at night was higher than in the group that was not affected by a curfew at night, with an average difference of 40.9%. Once age was not used as fixed variable increase in age was associated with the chance of decreased and also increased alcohol consumption (ORad=0.80, 95%CI=0.71-0.90, p=0.000 and ORad=0.84, 95%CI=0.75-0.94, p=0.02, respectively), thus, the younger the more likely to report a decrease or increase in alcohol consumption.

Conclusions/Outlook

The younger the participants were the more likely they were to change their alcohol consumption. Bar closures, bans on parties and gathering with friends at night may have led to a decline in alcohol consumption for social alcohol consumers. For others, this could have led to more alcohol consumption at home due to more time spend at home or boredom.

P-05-05

VEGETABLE DIVERSITY REDUCED IN TIMES OF COVID-19 - FIRST FINDINGS FROM A GLOBAL CIVIL SCIENCE PROJECT

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Introduction

The crisis related to the COVID-19 pandemic influenced nutrition security through various pathways. This ranged from short-term to long-term impacts, not only on health but also on food systems and nutrition. The "Food systems in times of COVID19" project aimed to identify how the observed constraints affect the food systems and dietary behaviour of populations across the globe. Here, special attention was paid to the consumption of vegetables and legumes.

Methods

An online survey on Food and COVID-19 was conducted using a semi-structured questionnaire translated into several languages. Regression models were calculated to evaluate changes in consumption patterns and to test potential determinants for the changes. For information on reasons for changes open ended questions were analysed qualitatively.

Results

Time spend at home, working from home, and mental stress were important drivers for changes in dietary intake according to the 1042 respondents included in this analysis. The participants observed a change in food quantity (38%) and vegetable intake (27%). No changes were observed for the number of vegetable groups consumed, while significant reductions in diversity were detected within all vegetable groups. Associations between the number of consumed vegetable types during the COVID-19 pandemic and income regions as well as gender were observed. The regression analysis showed that the level of decrease in vegetable diversity in the different vegetable groups were depending on educational and occupational status, gender and household environment. Changes in food prices were related to changes in vegetable intake per se, overall vegetable diversity, and diversity within the vitamin A rich vegetable group.

Conclusions/Outlook

Food systems are not static and are transitioning quickly as could be observed during the Covid-19 pandemic. There is a need for a nutrition strategy to strengthen the resilience of vulnerable households to consume a diverse diet in adequate amount even in times of a pandemic.

P-05-06

RESPONSIVENESS TO DIVERSITY AMONG HOSPICES AS WELL AS INPATIENT AND OUTPATIENT PALLIATIVE CARE PROVIDERS IN GERMANY

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Introduction

Responding to the individual and subjective needs and expectations of diverse patients is essential to patient-centered and equitable healthcare. This is especially true for palliative and hospice care, where cultural values, intimacy and acceptance play a fundamental role. Until now it is largely unclear, how and to what extent hospices and other palliative care providers are diversity responsive and what barriers they encounter when trying to implement corresponding measures.

Methods

A mixed-mode survey in two waves (postal/online) among hospices and inpatient and outpatient palliative care providers was conducted in 2020. A random sample of 75% (n=1,901) of all facilities in Germany were addressed. Data were analyzed descriptively.

Results

Data from 346 providers (response rate=18.2%) were included in our analysis. The majority included diversity considerations in their mission statement (56.9%) and 35.3% offered respective trainings to employees on a regular basis. While 26.3% were part of networks focusing on diversity aspects, only 4.6% had designated a diversity commissioner and 4.3% had specialized internal working groups. Main barriers to implementing measures were organizational difficulties (31.8%), lack of knowledge on how to implement such measures (28.3%), decision makers not being convinced of the necessity (25.7%) and a lack of financial resources (25.1%). In contrast, 26.9% reported no barriers.

Conclusions/Outlook

Responsiveness to diversity of the providers is mostly ideational, while measures to address diversity of patients and staff are less common. Main barriers to implementing diversity responsive measures are practical challenges, as well as a lack of perceived relevance among decision makers and financial constraints. Practical guidelines and the development of support structures may be useful approaches to increasing diversity responsiveness among German hospices and palliative care providers and achieve more equitable healthcare.

P-05-07

3 TO 6 YEAR OLDS IN PRESCHOOLS IN MECKLENBURG-WESTERN POMERANIA (MWP) AFFECTED BY MOTOR, LINGUISTIC, COGNITIVE, AND SOCIAL-EMOTIONAL DEVELOPMENTAL RISKS: CROSS-SECTIONAL COMPARISON OF PREVALENCE RATES (2017-2020)

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Introduction

Since 2011 preschools in socially deprived regions in MWP are eligible for additional funds for support for children with developmental risks (DR). Mandatory criteria for claiming these funds: annual assessment of 3-6-year olds with the "Dortmund Developmental Screening for Preschools (DESK 3-6 R)" to detect DR in the domains fine/gross motor, language, cognition, social development. Due to the COVID-19 crisis in MWP all preschools were closed in March 2020. The corona lockdown may have caused DR by a discontinuation of promoting activities with subsequently impact for the acquisition of children´s competencies.

What are the prevalence rates of DR assessed in 2017-2020 (i.e. survey waves (SW) 1-4)? How much is the difference of prevalence rates assessed in SW 3 (conducted in the year before the corona-conditioned lockdown), and SW 4 (mainly conducted in autumn 2020), respectively?

Methods

Comparison of cross-sectionally assessed prevalence rates of DR stratified for sex. (n = 1,653–8,185; status as of 15.04.2021).

Results

Referring to all 4 SW between 6% (5-6 year-old girls at SW 4 in the DESK domain social competence) and 33.8% (4-year old boys at SW 4 in the DESK domain cognition) are affected by a DR. Comparing the prevalence rates the difference SW 4 minus SW 3 ranges between -1.5% (a lower prevalence rate in 5-6-year old boys in the DESK domain social competence in SW 4) and +5.4% (i.e. a higher prevalence rate in 3-year old girls in the DESK domain cognition and language in SW 4). More than ¾ of the comparisons (81%) are deteriorations.

Conclusions/Outlook

On the one side, the results provide no evidence for a substantial increase in prevalence rates of DR assessed in 2020 compared to 2019. On the other side, many children are still affected by a DR, especially in the linguistic/cognitive DESK domain and also before the corona-lockdown. These cross-sectionally assessed data need further to be longitudinally analyzed on a child-specific level.

P-05-08

INANSPRUCHNAHME ALLGEMEINMEDIZINISCHER UND FACHÄRZTLICHER LEISTUNGEN DURCH MENSCHEN MIT MIGRATIONSHINTERGRUND IN BERLIN UND BRANDENBURG UND DAMIT ASSOZIIERTE FAKTOREN – ERGEBNISSE DES IMIRA-PROJEKTES

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Introduction

Deutschland ist ein Einwanderungsland, jede vierte hier lebende Person hat einen sog. Migrationshintergrund (MH). Studien zeigen eine geringere Inanspruchnahme allgemeinmedizinischer (IAL) und fachärztlicher Leistungen (IFL) durch Menschen mit MH, z.B. aufgrund rechtlicher oder sprachlicher Zugangsbarrieren. Menschen mit MH sind eine heterogene Gruppe, der MH allein kann die geringere Inanspruchnahme demnach nicht erklären – welche Faktoren liegen also dahinter?

Methods

2018 wurden im Rahmen eines multimodalen, mehrsprachigen Befragungssurveys Personen mit kroatischer, polnischer, rumänischer, syrischer oder türkischer Staatsangehörigkeit in Berlin und Brandenburg zum Themenfeld Gesundheit befragt. Für IAL wurde der Zeitpunkt der letzten Konsultation kategoriell erfasst, für IFL nur bei stattgefundener IAL in den letzten zwölf Monaten. Daten von 1.055 Teilnehmenden (TN) wurden univariabel sowie mittels multivariabler logistischer Regression analysiert, um mit IAL und IFL assoziierte soziodemographische (Geschlecht, Alter, sozioökonomischer Status (SES)), gesundheits- (subjektiver Gesundheitszustand) und migrationsbezogene (Aufenthaltsdauer, -status, Deutschkenntnisse) Faktoren zu identifizieren.

Results

79,6% der TN berichteten IAL, 59,5% IFL in den letzten zwölf Monaten. Weibliches Geschlecht, Alter ab 65 Jahren und ein schlechterer subjektiver Gesundheitszustand waren mit häufigerer IAL und IFL assoziiert, eine Aufenthaltsdauer unter zwei Jahren (OR=0,36) sowie ein befristeter Aufenthaltsstatus (OR=0,57) mit geringerer IAL. SES sowie Deutschkenntnisse zeigten univariabel weder hinsichtlich IAL noch IFL einen Einfluss.

Conclusions/Outlook

Unsere Ergebnisse zeigen eine geringere IAL für TN mit kürzerer Aufenthaltsdauer und befristetem Aufenthaltsstatus. Die Filterführung im Fragebogen könnte diese fehlenden Effekte hinsichtlich IFL erklären. Dennoch bedarf es weiterer Forschung, um Zugangsbarrieren genauer beschreiben und abbauen zu können, z.B. den Einfluss von Diskriminierungserfahrungen.

POSTER

P-06 | POSTERSESSION 06

P-06-01

INTERPRETABILITY OF BI-LEVEL VARIABLE SELECTION METHODS

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Introduction

Many datasets possess a natural group structure due to high correlations or contextual similarities of variables. Incorporating this information in a selection process enables the identification of relevant variable groups and also relevant members of those groups. It has been argued that incorporating such prior knowledge can improve the interpretability of the selection output, but this hypothesis has not yet been investigated for bi-level selection methods. A comparison of bi-level selection methods with the gold standard LASSO for variable selection can provide insights into the interpretability of the selection results.

Methods

Composite Minimax Concave Penalty (cMCP), Group Exponential LASSO (GEL), Sparse Group LASSO (SGL), and LASSO as reference method were used to select predictors in a time-to-event (survival), regression (linear trait) and classification (binary trait) task. For this purpose, three group formations based on prior knowledge, correlation structure, or random assignment were provided. Selections were done in 1.000 bootstrap samples derived from a cohort of 1.001 patients (MyoVasc-study; NCT04064450). Interpretability of the generated models was assessed by selection accuracy, group consistency, and collinearity tolerance.

Results

Bi-level selection methods outperformed LASSO in all three dimensions of interpretability, for most selection tasks considered. Here, cMCP demonstrated superiority in selection accuracy in most applications, while GEL and SGL were superior in group consistency and collinearity tolerance. The performance of bi-level selection methods was maintained even when group formation was inaccurate.

Conclusions/Outlook

If there is interest in interpreting the selection results and information on relationships between variables is available, the use of bi-level selection methods seems to be recommended over LASSO. This is due to their ability to treat variables of a group consistently and the tendency to select correlated variables together.

P-06-02

SEROPRÄVALENZSTUDIE IN HOCHINZIDENZGEMEINDEN: CORONA-MONITORING *LOKAL* – EINBLICKE IN DIE FELDARBEIT

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Introduction

Die COVID-19-Pandemie ist in Deutschland regional und lokal unterschiedlich ausgeprägt. Seroepidemiologische Studien in Hochinzidenzgemeinden helfen, besonders exponierte Gruppen auch auf überregionaler Ebene sowie mit einer Infektion assoziierte Faktoren zu identifizieren. Eine hohe Stichprobenqualität ist hierfür essentiell, weshalb verschiedene Maßnahmen der Teilnehmendengewinnung erforderlich sind.

Methods

In vier Hochinzidenzgemeinden wurden Einwohnermeldeamtsstichproben gezogen und lokale Studienzentren eingerichtet zur Entnahme von Rachenabstrichen und Blutproben bei jeweils ca. 2.000 Teilnehmenden (TN), um aktive und stattgehabte SARS-CoV-2-Infektionen zu ermitteln. Eine kurze schriftliche Befragung erfolgte am Untersuchungstag, eine längere webbasierte oder telefonische Nachbefragung einige Tage später, um mit einer Infektion assoziierte Faktoren zu identifizieren. Es wurden Hausbesuche angeboten, Einwilligungen durch gesetzliche Vertretungen waren möglich. In den urbanen Studienorten Straubing und Berlin-Mitte konnten Laiendolmetscher*innen durch TN einbezogen werden, Studienmaterialien in mehreren Übersetzungssprachen wurden eingesetzt.

Results

Insgesamt haben 9.002 TN an der Studie teilgenommen. Die Responsequote lag im Studienort Kupferzell mit 62% am höchsten und in Berlin-Mitte mit 29% am niedrigsten. An der Nachbefragung haben jeweils etwa 90% der TN teilgenommen, am seltensten diejenigen aus der niedrigen Bildungsgruppe (54%). Nur 15% der TN nahmen telefonisch an der Nachbefragung teil, unter den TN ab 65 Jahren waren es hingegen 54%. Weitere Indikatoren des Feldmonitorings werden im Beitrag präsentiert, z.B. zur Nutzung des Hausbesuchsangebotes sowie zum Einsatz der Übersetzungssprachen.

Conclusions/Outlook

Der Einsatz verschiedener Maßnahmen der Teilnehmendengewinnung war essentiell, um verschiedene Bevölkerungsgruppen adäquat in die Studie einzuschließen. Der Einsatz von Hausbesuchen sowie das Angebot der telefonischen Nachbefragung hat sich insbesondere für ältere TN bewährt.

P-06-03

POPULATION ATTRIBUTABLE FRACTIONS OF OSTEOPONTIN ON A COMPOSITE KIDNEY ENDPOINT IN THE GCKD STUDY.

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Introduction

Osteopontin (OPN) is involved in the pathogenesis of kidney failure. In a cohort of patients with chronic kidney disease (CKD), we evaluated the association of OPN with adverse kidney events and estimated the population attributable fraction (PAF) to quantify the avoidable proportion of events if all patients had low OPN levels.

Methods

We analyzed data from patients of the German Chronic Kidney Disease (GCKD) study with OPN measurements. Time from study entry to the first event of a composite endpoint of kidney events (kidney replacement therapy/related death) was calculated. A multivariable proportional hazard model was fitted to estimate the effect of log(OPN) in terms of cause-specific hazard ratios (HR), accounting for competing death events.
Time-dependent PAF was calculated: $[P(D(t)=1) - P(D(t)=1|E=0)]/P(D(t)=1)$, where $P(D(t)=1)$ is the probability of kidney events by time t and $P(D(t)=1|E=0)$ the outcome probability among patients with the lowest OPN quartile. The two components of the PAF were estimated with cumulative incidence functions (CIF) to account for competing risks. Adjustment for confounding was achieved by integrating inverse-probability weights. 95% confidence intervals were obtained from bootstrap samples.

Results

Over 6.5 years of follow-up, 469 kidney events and 470 competing death events occurred among 4,950 patients. Median OPN level was 29.2 ng/mL (range 4.7-247). Higher log(OPN) levels were associated with a higher risk of kidney events (HR 1.4, 95%CI 1.2-1.7).
Fig. 1 shows the CIFs of the risk of kidney events, overall and with respect to the lowest OPN quartile as the reference (≤20.7 ng/mL). The PAF was 37% at year 4 (95%CI 11-61%, **Fig. 2**) and reduced to 31% at year 6 (95%CI 3-56%), confidence intervals overlapped.

Conclusions/Outlook

Higher OPN levels were associated with a higher risk of kidney events. Assuming causality of OPN with kidney events and successful lowering of high OPN levels to within the lowest OPN quartile, about one third of events could have been avoided.

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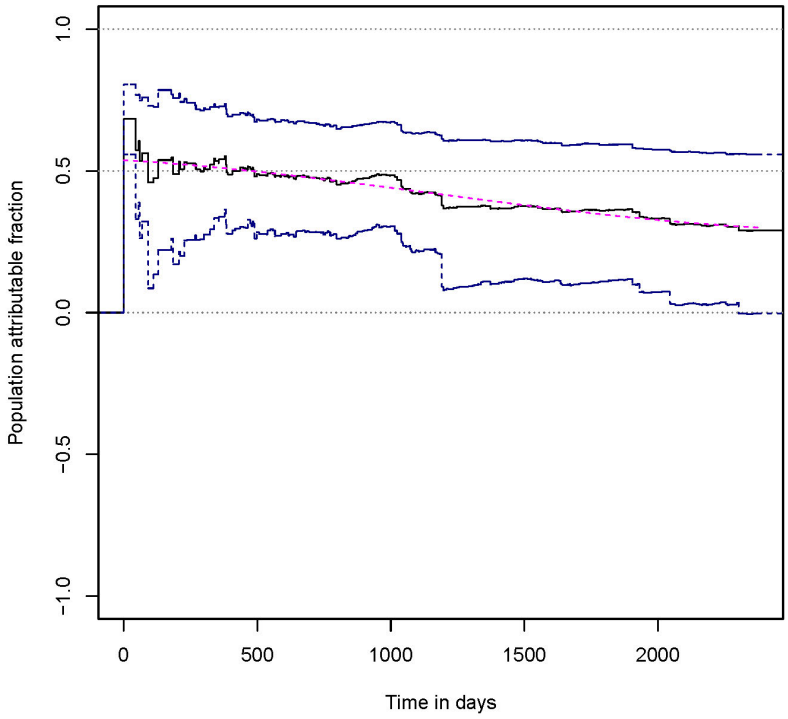

Figure 2: Population attributable fraction for osteopontin on kidney events

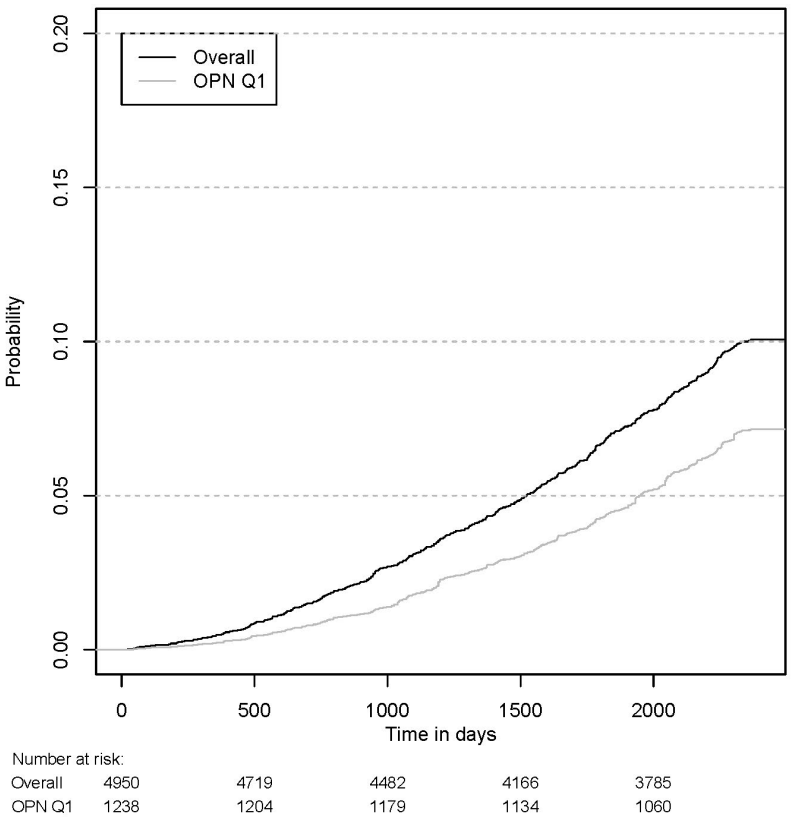

Figure 1: Components of PAF - cumulative incidence functions for kidney events

P-06-04

NOVEL ASSOCIATIONS BETWEEN INFLAMMATION-RELATED PROTEINS AND ADIPOSITY

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Introduction

Obesity is associated with a state of chronic low-grade inflammation which contributes to the development of comorbidities such as insulin resistance and cardiovascular disease. Despite major advances in the last two decades, the complex interplay between immune regulators and obesity remains poorly understood. Therefore, we aimed to identify novel inflammation-related proteins associated with adiposity.

Methods

We investigated the association between BMI and waist circumference and 72 circulating inflammation-related proteins in three independent population-based studies in Germany (KORA-Fit, BVSII, and ESTHER; n = 2,751). In addition, we used body fat mass measurements obtained by Dual-energy X-ray absorptiometry (DXA) to further validate our results and to explore the relationship between inflammation-related proteins and body fat distribution (Bialystok PLUS study, Poland; n = 195).

Results

We found 12 proteins associated with at least one measure of adiposity across all four studies, including four proteins for which the association is novel: DNER, SLAMF1, TRANCE, and CSF-1. The majority of the identified inflammation-related proteins were associated with the accumulation of adipose tissue in the abdomen and the trunk.

Conclusions/Outlook

We identified novel associations between adiposity and proteins involved in bone physiology, the central nervous system, and autoimmunity. Our study provides new insights into the immune dysregulation observed in obesity that might help uncover pathophysiological mechanisms of disease development.

P-06-05

ASSOCIATION OF HIGH-SENSITIVITY C-REACTIVE PROTEIN WITH PREDICTED DIABETES RISKS AMONG ADULTS WITHOUT KNOWN DIABETES IS MODIFIED BY DEPRESSIVE SYMPTOMS

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Introduction

High-sensitivity C-reactive protein (hs-CRP) is a biomarker of systemic inflammation. Elevated hs-CRP has been associated with an increased risk for cardiometabolic diseases including type 2 diabetes (T2D). Besides established risk factors, psychosocial factors contribute to the development of T2D. We examine the association of hs-CRP with predicted diabetes risk among adults without known diabetes in Germany considering psychosocial factors.

Methods

The 5-year risk of T2D (in %) was estimated among participants of the German National Health Interview and Examination Survey 2008-2011 (DEGS1) using the validated German Diabetes Risk Score (GDRS). The association of hs-CRP (high ≥ 3 mg/l vs. low <3 mg/l) with log-transformed 5-year risk of T2D was analyzed in linear regression adjusting for sociodemographics (age, sex, urbanicity, region, education), alcohol use and psychosocial factors (depressive symptoms defined by Patients Health Questionnaire-9 (PHQ-9 ≥ 10), social support measured by Oslo-3 social support scale, living alone). Interactions of hs-CRP with psychosocial factors were tested.

Results

Among 6009 participants aged 18-79 years without known diabetes, the 5-year risk of T2D was higher among persons with a high vs. low hs-CRP level (geometric mean 2.14% vs. 0.92%). In multivariable analysis, a high levle of hs-CRP was associated with an increase of 5-year risk of 0.92% (95% CI 0.73-1.13). The increase was larger among persons with depressive symptoms (1.80%, 95% CI 1.02-1.09) compared to persons without depressive symptoms (0.86%, 95% CI 0.67-1.07) (p=0.019 for interactions between hs-CRP and depressive symptoms). Excluding persons with a hs-CRP level of ≥ 10 mg/l did not change the results.

Conclusions/Outlook

Among adults without known diabetes in Germany, a high hs-CRP level is associated with an increased predicted risk for T2D. The presence of depressive symptoms may strengthen this association, which should be considered in the primary prevention of T2D.

P-06-07

IMPROVING THE CARE OF HEART FAILURE PATIENTS THROUGH IMPLEMENTATION OF NON-MEDICAL SPECIALIZED STAFF AND AN *E*HEALTH PLATFORM WITHIN A DISEASE MANAGEMENT PROGRAM: THE DMP-HI*PLUS* CLUSTER-RANDOMIZED INTERVENTION TRIAL

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Introduction

Despite progress in the therapy of heart failure (HF), mortality is still unacceptably high. HF is the most frequent cause of hospitalization and associated with a markedly reduced quality of life (QoL). In 2018, the Federal Joint Committee (G-BA) published the proposal for a Disease Management Program (DMP) for HF patients (DMP-HI). The DMP-HI*Plus* trial investigates, whether implementation of an evidence-based structured DMP improves QoL among HF patients compared to usual care.

Methods

DMP-HI*Plus* is a parallel-arm cluster-randomized trial. In the control group, HF patients will be treated according to the level of care offered by the DMP-HI, i.e. as stipulated by the G-BA. In the intervention group, 5 elements are added: a) care implementation supported by a specifically trained physician assistant qualified in HF (HI-MFA); b) care program derived from a positively evaluated trial; c) *e*Health platform; d) enhanced, structured communication between cardiologist and general practitioner via HI-MFA and *e*Health platform; e) telemonitoring tools on demand. The primary endpoint is an improvement in disease-specific QoL (Kansas City Cardiomyopathy Questionnaire) after 12 months. As secondary endpoints, performance indicators for the DMP-HI as mandated by the G-BA, HF related unscheduled hospitalizations, death, patient and staff satisfaction, change in NYHA functional class, and health-economic aspects (cost-effectiveness and cost-utility) accumulating in the first year of the trial will be assessed.

Results

The trial will recruit 1,260 patients (2 x 630) across 70 cardiology practices in Germany and follow them for 12 months. The start-up phase will start in Oct 2021, and recruitment will be initiated in Mar 2022. The trial will report in Oct 2024.

Conclusions/Outlook

The DMP-HI*Plus* approach is expected to reduce acknowledged deficits in HF care and, if positive, serve as blueprint for a generally available integrated HF care model.

P-06-08

USE OF GLUCOSE MONITORING DEVICES AMONG ADULTS WITH DIABETES IN GERMANY - RESULTS FROM THE STUDY "DISEASE KNOWLEDGE AND INFORMATION NEEDS – DIABETES MELLITUS 2017"

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Introduction

Devices for continuous or intermittent (flash) glucose monitoring (CGM/FGM) were developed to improve optimal blood glucose control and to liberate persons with diabetes from finger prick glucose measurements. Devices are now refundable and increasingly used, mainly among persons with type 1 diabetes (T1D) or patients with type 2 diabetes (T2D) on insulin therapy. We investigate continuous glucose monitoring (GM) device use and its determinants among adults with diabetes in Germany.

Methods

The study population were participants with diagnosed diabetes (n=1378, ≥18 years) from a nationwide population-based telephone survey in 2017. GM device use was defined as having used either a CGM or FGM sensor system. Correlates of CGM/FGM use were obtained from logistic regression with sociodemographics (age, sex, region of residence, education), diabetes type and duration, insulin use, long-term diabetes complications, and a history of hyper- and hypoglycemia in the past year as independent variables.

Results

Among participants (women: 50,4%, mean age: 65.2 years), 50% were insulin users and 14.1% reported T1D. Overall 8.2% (95% CI 6.6-10.3%) used CGM/FGM, 9.0% (6.7-12.1%) in men and 7.4% (5.3-10.3%) in women. Use of CGM/FGM was higher among adults with T1D (29.0%, 21.3-38.3%) vs. T2D (5.0%, 3.6-6.9%) and among insulin users (14.6%, 11.6-18.4%) vs. nonusers (1.8%, 0.9-3.6%). Among CGM/FGM users, 14 persons (13.6%) used an insulin pump. In multivariable analysis, CGM/FGM use was associated with T1D (OR 2.96, 95% CI 1.54-5.67), insulin use (4.46, 1.88-10.6), and a history of hypoglycemia (2.28, 1.06-4.87).

Conclusions/Outlook

Among adults with diabetes in Germany, CGM/FGM use was associated with T1D and insulin use, irrespective of sociodemographic factors. CGM/FGM users are more likely to report hypoglycemia, which may be explained by the indication of use and the recorded alarms. Further studies are required to assess the effects of CGM/FGM use on glucose control, safety, self-management, and quality of life.

POSTER

P-07 | POSTERSESSION 07

P-07-01

AN ONLINE TOOL FOR ESTIMATING POSITIVE PREDICTIVE VALUE AND NEGATIVE PREDICTIVE VALUE OF SARS-COV-2 TESTS.

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Introduction

While the screening tests for SARS-CoV-2 infection have gained popularity in public health, there are only few tools explaining the test results. Instead of a binary judgment of a positive or a negative test result, such a result should be interpreted as a probability. Positive predictive value (PPV) and negative predictive value (NPV) of a diagnostic test depend on the prior probability of having the respective disease. If no other information is available, the prevalence of the disease can be used to approximate the prior. For SARS-CoV-2, this is however not satisfactory. People having related symptoms know that their personal risk is higher than the population prevalence. Yet it is difficult for individuals to make a reasonable guess about their risk regarding the symptoms they show. Our goal is to offer a user-friendly calculator to estimate individual risk and simplify the interpretation of SARS-CoV-2 test results.

Methods

Using Bayes' therorem we derive a more accurate estimation of PPV and NPV given the presence of symptoms. The corresponding formulae depend on probabilities of having these symptoms given the disease status. We obtain the underlying conditional probabilities from a review of population-based studies. We aim to deliver an easy-to-use calculator for testees and healthcare practitioners who wish to get a simple interpretation of the individual's test result.

Results

We develop a Shiny app that can be easily deployed online. Users can choose the test type they use (Polymerase chain reaction test and antigen test with preset sensitivity and specificity) and input their test result, age and sex and select from a list of symptoms to obtain PPV and NPV respectively. We introduce the statistical model, explain the empirical data behind the model and demonstrate the app functionality. We discuss the benefits and limitations of using this app in self-testing and clinic-testing scenarios.

Conclusions/Outlook

We give an outlook on potential improvements and adaptations of the tool.

P-07-02

FORESTRY WORKERS IN LOWER SAXONY, GERMANY: WHAT ARE THE RISK FACTORS FOR HANTAVIRUS- AND LEPTOSPIRA SEROPOSITIVITY AMONG THIS AT-RISK GROUP?

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Introduction

Hantavirus-infections and Leptospirosis are re-emerging zoonotic diseases. Pathogen-specific seroprevalence and risk factors related to leisure and occupational exposures among an at-risk group of forestry workers (FW) in Lower Saxony (LS) were studied. Findings will be used to develop both targeted public health measures and communication strategies for dissemination.

Methods

Sera sampled in 2016 among FW in LS were screened for anti-Hantavirus IgG (H) and anti-Leptospira IgG (L) by ELISA. Data on potential risk factors was collected by standardized questionnaire and analysed by multivariable logistic regression. Odds ratios adjusted for age and sex (aOR) and CI 95% are reported.

Results

Out of 601 FW (89.4% male, median age 53ys) 8.8 % were H-positive; 4.9 % L-positive. Seropositivity was higher in male than female FW (p= 0.04). One H-positive FW (n=53) recalled clinical diagnosis; none of the L-positive FW (n=27) did.

Taking walks (aOR: 0.3; 0.1 -0.9) and keeping pet cats (0.5; 0.3 – 0.9) decreased the chance of H-positivity; working outdoors (2.8; 1.3 – 6.4), keeping reptiles (3.1; 1.2 – 8.5), cleaning attics (2.4; 1.1 – 5.4) and canoeing (2.4; 1.2 – 4.6) were related to H-positivity. Swimming in freshwater (2.7; 1.4 – 5.2) increased the chance; higher educational degree (0.6; 0.5 – 0.9) and gardening > 10ys decreased the chance of L-positivity (0.3; 0.1 – 0.99). FW obtained pathogen-specific information from employers and colleagues.

Conclusions/Outlook

Findings are within the range of other studies among FW in Europe. The results indicate that awareness needs to be raised among physicians, at-risk groups and the public towards these diseases. There is need to develop targeted prevention measures related to leisure and occupational risk e.g. “use masks when cleaning attics”. Both employers and public health institutions are key players in disseminating information and preventive measures. Targeted communication strategies need to be developed to reach out to at risk-groups and the public.

P-07-03

HETEROGENEITY OF NON-PHARMACEUTICAL INTERVENTIONS IMPLEMENTED IN GERMAN FEDERAL STATES TO SLOW THE SPREAD OF COVID19

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Introduction

Non-pharmaceutical interventions (NPIs) continue to be a central means of controlling the COVID19 pandemic. In Germany, implementing NPIs was left to each federal state (FS). While data on NPI implementation in Germany are available, they are not ideal for an easy overview and comparison of each FS. We aimed to create a visual overview of selected NPIs across FSs and examine the extent of implementation heterogeneity.

Methods

NPI data for all FSs from 01.03.2020 to 15.02.2021 were downloaded from the "Corona-Datenplattform" website, managed by the German Federal Ministry for Economic Affairs & Energy. Variables for a range of NPIs were extracted and merged into single variables. For each NPI, we calculated a heterogeneity indicator (HI) by both calendar week and by pandemic wave. The HI ranges from 0 to 100 and accounts for the proportion of FSs that implemented a specific NPI in each week and wave. Furthermore, a coefficient of variation (CV) describes the variability in the number of days within a wave that an NPI was implemented in each FS. The statistical software SAS was used for calculation.

Results

Our results include a chart showing which NPIs were implemented on each day for each FS as well as a heat map showing weekly heterogeneity. Some NPIs remained quite homogeneous, eg: HI for wearing a mask on public transport during the first wave was 88% and reached its maximum in the 2nd and 3rd wave (100%). Other NPIs showed more variability. For the restriction to meet with only 1 person from a different household, HI ranged from 25% to 63%, while requiring restaurants to only offer food to go ranged from 12% to 100%. Also the CV showed high variability among phases and the different NPIs.

Conclusions/Outlook

Our study overviews the heterogeneity of NPIs implemented in Germany. Data representation and the indicators can also be used by other researchers, particularly in connection with infection data. The authors would be pleased to share the outputs from our study.

P-07-04

CAN REPEATED SELF-SAMPLING BE USED FOR THE DETECTION AND MONITORING OF SARS-COV-2 IN OUTBREAK-RELATED EXAMINATIONS? EXPERIENCES FROM THE COALA STUDY.

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Introduction

Many characteristics of SARS-CoV-2, like the role of children in transmission dynamics, remain unclear. In case-ascertained studies, close contacts to an index-case, such as household members, are enrolled for longitudinal observation immediately after an index-case is identified. Longitudinal sampling is essential for understanding transmission dynamics of infectious diseases. This study explored the feasibility of saliva and mouth-nose swabs (MNS) for repeated respiratory self-sampling of SARS-CoV-2 among children and their close contacts.

Methods

19 SARS-CoV-2-outbreaks in daycare centers were investigated (children and siblings, n=274, adults, n=340) from 10/2020 to 03/2021. During the initial home visit, baseline measurements (MNS, saliva) were taken and participants received instructions on self-sampling and sampling on children. Following the instructions, adult participants took MNS and saliva-samples from themselves and from their children on 4 occasions during a 12 day-period. Since the study is still in process, the presented data is preliminary.

Results

The return of self-collected MNS ranged from n=584/614 (95%) at measurement point 1 to n=543/614 (88%) at measurement point 4. The return of saliva-samples was lower: from n=551/614 (90%) at measurement point 1 to n=510/614 (83%) at measurement point 4. This could be explained by young children lacking the ability to spit. Return of saliva samples was lower among children and siblings, with n=223/274 (81%) at measurement point 1 to n=204/274 (75%) at measurement point 4. The return of saliva samples from adults (18+years) was n=328/340 (97%) at measurement point 1 to n=306/340 (90%) at measurement point 4.

Conclusions/Outlook

A high return of respiratory samples confirms the feasibility of both saliva-samples and combined mouth-nose swabs for self-sampling and its use on children.

P-07-05

SEROPRÄVALENZ VON ANTIKÖRPERN GEGEN SARS-COV-2 IN DEUTSCHLAND – ERSTE ERGEBNISSE DER STUDIE CORONA-MONITORING BUNDESWEIT (RKI-SOEP-STUDIE)

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Introduction

Angesichts der Ausbreitung des neuartigen Coronavirus SARS-CoV-2 ist die Ermittlung des Anteils der Bevölkerung, der bereits eine Infektion durchgemacht hat, von großer Bedeutung, um zu einem verbesserten Verständnis der Virusausbreitung in der Bevölkerung zu gelangen. Ziele der Studie CORONA-Monitoring bundesweit (RKI-SOEP-Studie) sind es, die Seroprävalenz von IgG-Antikörpern gegen SARS-CoV-2, den Umfang unerkannter SARS-CoV-2-Infektionen sowie Risiko- und Schutzfaktoren für eine SARS-CoV-2-Infektion in einer bundesweiten Studie der erwachsenen Wohnbevölkerung zu ermitteln.

Methods

Die RKI-SOEP-Studie erhob von Oktober 2020 bis Februar 2021 Bioproben und Befragungsdaten in einer deutschlandweiten Stichprobe des Sozio-oekonomischen Panels (SOEP). Die Panelisten (n=31.675) erhielten per Post Materialien zur Selbstabnahme einer Trockenblutprobe (Finger-Prick) und eines Mund-Nase-Abstrichs. Die Untersuchung der Proben auf SARS-CoV-2-IgG-Antikörper erfolgte durch einen ELISA-Test auf SARS-CoV-2-RNA mittels PCR.

Results

Für die Teilnahme konnten 47,4% der Panelisten gewonnen und zur Selbstbeprobung motiviert werden. Erste Auswertungen weisen darauf hin, dass die Seroprävalenz im Einklang steht mit Ergebnissen anderer seroepidemiologischer Studien mit Zufallsstichproben aus der Allgemeinbevölkerung in Deutschland, die in einem entsprechenden Zeitraum beprobt wurden. Die endgültigen Ergebnisse der gewichteten und nach Testsensitivität und -spezifität adjustierten Seroprävalenz von SARS-CoV-2-Antikörpern in Deutschland sowie eine Abschätzung der Untererfassung werden in dem Beitrag berichtet.

Conclusions/Outlook

Die Erfahrungen der Studie zeigen, dass bundesweite Schätzer der Seroprävalenz durch Selbstbeprobung in einem bundesweiten Panel in kurzer Zeit ermittelt werden können. Eine zweite Welle der Studie ist vorgesehen, um die Ausbreitung der SARS-CoV-2-Infektion im Verlauf sowie die langfristigen gesundheitlichen und sozialen der Folgen der Pandemie zu untersuchen.

P-07-06

SERIOUS ADVERSE DRUG REACTIONS OF FLUOROQUINOLONES: A PHARMACOEPIDEMIOLOGICAL ANALYSIS OF GERMAN HEALTH INSURANCE DATA – STUDY PROTOCOL

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Introduction

As a result of the risk assessment report on fluoroquinolones (FQs) conducted by the European Medicines Agency, restrictions and changes have been established for the use of FQs in 2019. This study will examine whether and to what extent the use of FQs is associated with a modified risk for several serious adverse drug reactions (ADRs) such as cardiac arrhythmia, aortic aneurysms, acute toxic liver diseases, defined neurological and neuropsychiatric disorders and collagen-associated diseases.

Methods

Our cohort study with longitudinal routine data from the large German statutory health insurer, the "AOK - Die Gesundheitskasse", covers a study period of seven years from 2013 to 2019. The cohort consists of patients aged 18 years and older at their first filled antibiotic prescription, followed up over a period of at least 365 days. Hazard ratios are estimated from Cox proportional hazards regression models with adjustment for potential influencing factors. If applicable, propensity scores will be used as further methods of covariate adjustment.

Results

The study protocol will be presented in detail; results are expected to be available at the end of 2021.

Conclusions/Outlook

The results will contribute to real-world evidence for ADRs after the use of FQs in routine care providing valuable insight into the comparative safety of FQs and comparable antibiotics.

POSTER

P-08 | POSTERSESSION 08

P-08-01

COLORECTAL CANCER AMONG RESETTLERS FROM THE FORMER SOVIET UNION AND IN THE GENERAL GERMAN POPULATION: CLINICAL AND PATHOLOGICAL CHARACTERISTICS AND TRENDS

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Introduction

This study examined time trends as well as clinical and pathological characteristics of colorectal cancer (CRC) among ethnic German migrants from the Former Soviet Union (resettlers) and the general German population.

Methods

Incidence data from two population-based cancer registries were used to analyse CRC as age-standardized rates (ASRs) over time. The respective general populations and resettler cohorts were used to calculate standardized incidence ratios (SIRs) by time-period (before and after introduction of screening colonoscopy in 2002), tumor location, histologic type, grade, and stage at diagnosis. Additionally, SIRs were modelled with Poisson regression to depict time trends.

Results

During the study period from 1990 to 2013, the general populations showed a yearly increase of ASR; but for age above 55, truncated ASR started to decline after 2002. Among resettlers, 229 CRC cases were observed resulting in a lowered incidence for all clinical and pathological characteristics compared to the general population (overall SIR: 0.78, 95%CI 0.68-0.89). Regression analysis revealed an increasing SIR trend after 2002.

Conclusions/Outlook

Population-wide CRC incidence decreases after the introduction of screening colonoscopy. Whereas, the lowered CRC incidence among resettlers is attenuating to the general population after 2002 which might indicate that resettlers do not benefit equally from screening colonoscopy.

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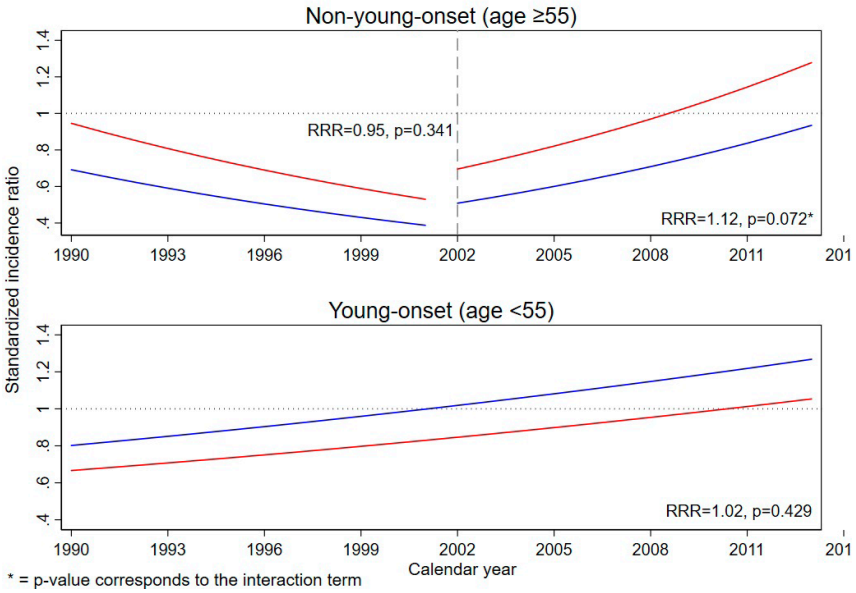
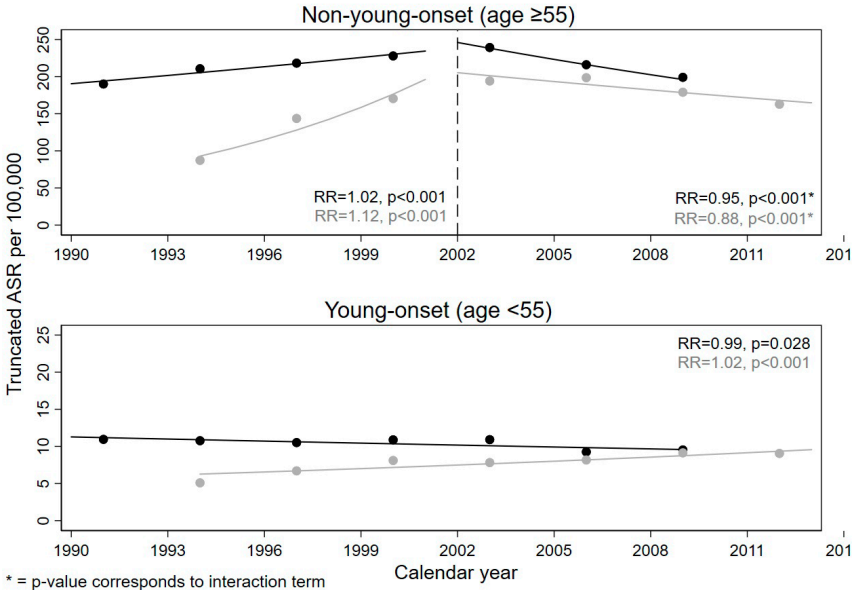


Modelled standardized incidence ratios for colorectal cancer among resettlers
Modelled standardized incidence ratios for colorectal cancer among resettlers in comparison to the direct host populations using Poisson Regression from 1990 to 2013; the relative SIR change (RRR) corresponds to the modelled calendar year effect; the dashed line indicates the year of screening colonoscopy introduction; blue line represents men, red line women



Observed and modelled young-onset and non-young-onset truncated ASRs of colorectal cancer incidence
Observed and modelled young-onset and non-young-onset truncated ASRs of colorectal cancer incidence for general population from 1990 to 2013; the rate ratio (RR) corresponds to the modelled calendar year effect; the dashed line indicates the introduction of screening colonoscopy; black represents the Saarland population, grey the Münster population.

P-08-02

28-YEAR INCIDENCE AND TIME TRENDS OF CHILDHOOD LEUKAEMIA IN FORMER EAST GERMANY COMPARED TO WEST GERMANY AFTER GERMAN REUNIFICATION: A STUDY FROM THE GERMAN CHILDHOOD CANCER REGISTRY

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Introduction

The aetiology of childhood leukaemia is largely unknown. Analyses of geographical differences may enhance aetiologic insights. The reunification of Germany in 1990 provides a unique opportunity to evaluate incidence patterns and time trends in two merging countries with substantial lifestyle, social and socioeconomic differences.

Methods

We identified all children diagnosed with a lymphoid leukaemia (LL) or acute myeloid leukaemia (AML) before the age of 15 years between 1991 and 2018 using the German Childhood Cancer Registry (N=14,922), and evaluated the incidence and temporal trends in former East Germany compared to West Germany by subtype, age at diagnosis and sex.

Results

Incidence rates of LL were substantially lower in Eastern Germany compared to Western Germany at the time of reunification, but then increased remarkably in Eastern Germany until around 2000, when incidence rates reached the same levels as those in Western German federal states. Thereafter, incidence rates remained rather stable with some indications of a slightly decreasing tendency in both Eastern and Western Germany (estimated annual percentage changes (EAPC)$_{2005-2018}$: East Germany = -0.8%; West Germany = -0.4%), driven by the 1- to 4-year olds. Overall, AML incidence rates were stable over time in Western Germany, while EAPC for Eastern Germany indicated an increasing tendency (EAPC$_{1991-2018}$ = 1.3%), mostly during the early 2000s and in most recent years.

Conclusions/Outlook

The underlying mechanisms driving the childhood leukaemia rates remain unclear. Linkage studies including individual and clinical data would be valuable in evaluating the impact of social, socioeconomic and lifestyle changes of a population more thoroughly.

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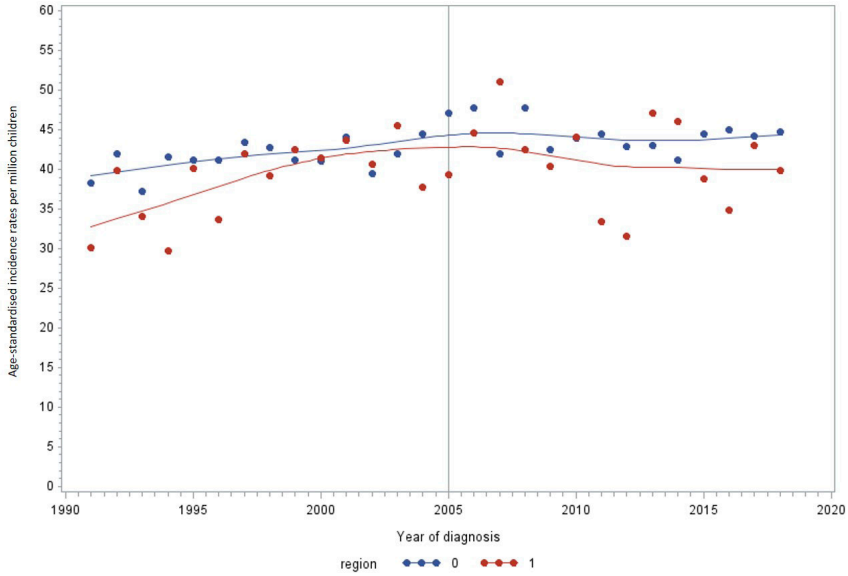
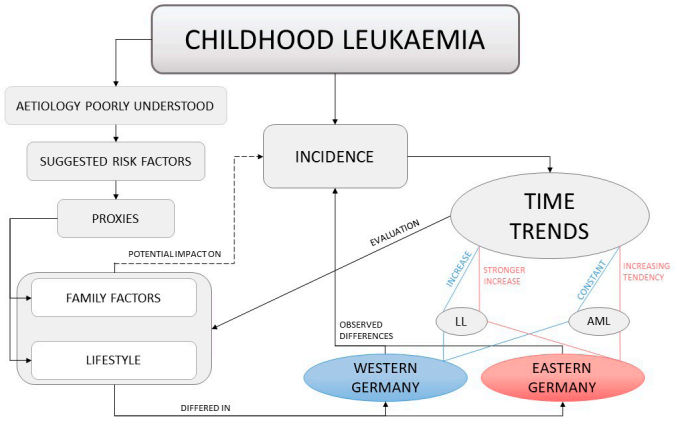


Age-standardised incidence rates of lymphoid leukaemia in Eastern and Western Germany over time



Graphical Abstract

P-08-03

TRENDS IN BREAST CANCER MORTALITY IN GERMANY, 2003-2018

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Introduction

The aim of the implementation of mammography screening was the reduction of breast cancer specific mortality. We observed a mortality decline by 25.8% (women aged 50-59 yrs) and 21.2% (60-69 yrs) from 2003/2004 to 2015/2016 [1]. Using population-based data until 2018 we analysed current trends in Germany.

Methods

- Population and mortality data (2003-2018) from the Information System of the Federal Health Monitoring [2]
- Age-specific rates for six age groups (screening eligible: 50-59, 60-69 yrs; non-eligible: 20-39, 40-49, 70-79 and ≥80 yrs)
- Absolute and relative differences in rates of the pre-screening-era (mean 2003/2004) and of the two most recent years (2017/2018)
- Trend analyses by means of joinpoint-regression models (SEER Joinpoint Software 4.7.0.0; model selection: weighted bayesian information criterion, BIC). A maximum of three joinpoints was allowed.

Results

We observed a decline in mortality rates for nearly all age groups until 2007-2010. Declines were greatest for the age groups 20-39, 40-49 and 50-59 years (Fig. 1). Thereafter we observed mortality declines only for the screening-eligible groups (50-59 yrs: APC -1.6% [95% CI: -0.8; -2.3]; 60-69 yrs: APC -2.7% [95% CI: -2.1; -3.2]). Comparing the rates of 2017/2018 with the rates of the pre-screening-era, we found that rates declined by 28.8% (50-59 yrs) and 23.6% (60-69 yrs). From 2008 and 2007, respectively, on we observed an increase in mortality rates for the two oldest age groups (70-79 yrs: APC 0.5% [95% CI: 0; 0.9]; ≥80 yrs: APC 1.8% [95% CI: 1.4; 2.1]). The relative increase in the rate for women ≥80 years equalled 14.2%.

Conclusions/Outlook

Currently, the extension of screening to younger (<50) and older women (≥70 yrs) is discussed and evaluated [e.g. 3, 4]. A group of experts from the European Commission (ECIBC) believes that there is sufficient evidence for that. The current lack of a mortality decline in those age groups should also be the reason for such a discussion in Germany.

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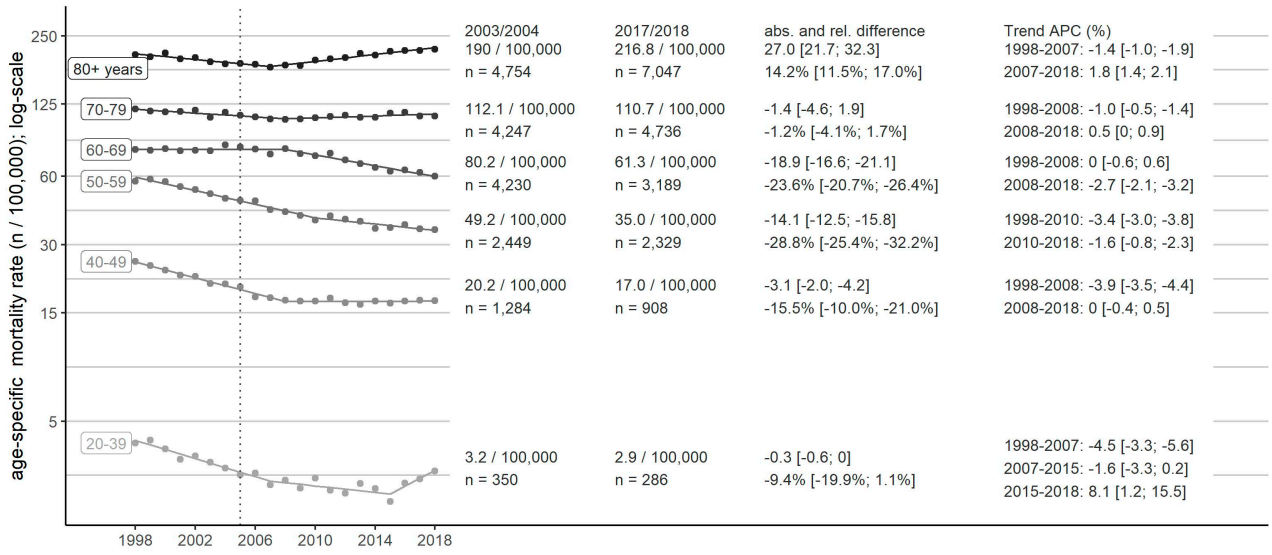

Age-Specific Breast Cancer Mortality in Germany, 2003-2018
Age-specific mortality rates over time, for the pre-screening-era (2003/2004) and the current years (2017/2018), absolute and relative differences between the two time periods, and results of the joinpoint-regression analyses (APC [95% CI], annual percentage changes with 95% confidence intervals)

P-08-04

TRENDS IN ENDOMETRIAL CANCER INCIDENCE IN GERMANY FROM 2001-2015: AN AGE-PERIOD-COHORT ANALYSIS

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Introduction

Rapid changes in risk factors for endometrial cancer such as obesity and reproductive behavior in the German population require monitoring endometrial cancer incidence. This ecological study investigated the effects of age, period and cohort in endometrial cancer incidence in Germany from 2001 to 2015.

Methods

Endometrial cancer incidence was obtained from the German Centre of Cancer Registry Data at Robert Koch Institute. The age-period-cohort analysis was used to analyze endometrial cancer incidence (ICD 10: C54-C55) of women aged 20 years and older from six German states. Sensitivity analyses of endometrial cancer cases coded as C54 were performed to account for possible misclassification and stratified analyses for old and new federal states were done to investigate possible regional differences in Germany.

Results

The age-period-cohort analysis showed that the risk of endometrial cancer remained stable for women aged 20-39 years, but increased at age 40-74 years, before dropping in the oldest age groups. A positive period effect was detected. The cohort effect decreased for the oldest cohorts born from 1916 to 1946, followed by a slight but constant decline among the youngest cohorts born from 1951 to 1991. The analyses stratified by regions revealed minor variations in age and cohort effects. Sensitivity analyses of endometrial cancer cases coded as C54 were consistent with original analyses.

Conclusions/Outlook

The age effect for premenopausal women remained stable, while it increased for peri- and postmenopausal women. The surging prevalence of important risk factors such as obesity may explain the increased period effect. Despite a reproductive behavior enhancing the risk of endometrial cancer, cohort effects decreased or plateaued in younger birth cohorts. The effects indicate that a reduction in the prevalence of modifiable risk factors could contribute to further reduce the risk of endometrial cancer. Our analyses were limited due to the lack of individual-level exposure information.

P-08-05

CIRCULATING LIVER ENZYMES AND RISKS OF CHRONIC DISEASES AND MORTALITY IN THE PROSPECTIVE EPIC-HEIDELBERG CASE-COHORT STUDY

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Introduction

Elevated liver enzyme concentrations in blood are indicative for not only liver diseases but may provide an early signal for being at risk for other chronic diseases. Our study aimed to assess the relationships of alkaline phosphatase (ALP), gamma-glutamyltransferase (GGT), alanine aminotransferase (ALT), aspartate transaminase (AST) and the de-Ritis-ratio (AST/ALT) with incidence and mortality of cardiovascular diseases (CVD) and the four most common cancers; i.e. breast, prostate, colorectal and lung.

Methods

We analysed a case-cohort sample of the prospective EPIC Heidelberg cohort, including cancer (n=1632), cancer mortality (n=761), CVD (n=1070), CVD mortality (n=381) and a random sub-cohort (n=2739) with an average follow-up duration of 15.6 years. Concentrations of liver enzymes were measured in pre-diagnostic blood samples and Prentice-weighted Cox regression models were used to estimate hazard ratios (HR) with 95% confidence intervals (CI).

Results

High ALP levels were associated with increased risk for lung cancer and all-cause mortality (highest vs. lowest quartile, multivariable adjusted HR=2.39 (95%CI 1.30-4.39), HR=1.31 (95%CI=1.02-1.67)), high AST levels with all-cause mortality (HR=1.45 (95%CI=1.15-1.82)), and a high de-Ritis-Ratio with prostate cancer risk, all-cause and cancer mortality (HR=1.61 (95%CI=1.10-2.36), HR=1.60 (95%CI=1.25-2.04), HR=1.67 (95%CI=1.26-2.23)). Using cut-points for liver enzyme levels above normal, we observed positive associations for all-cause mortality with ALP, GGT and AST; and assigning a combined risk score resulted in positive associations with all-cause and cause-specific mortality.

Conclusions/Outlook

Measurements of serum liver enzymes, as routinely performed in health check-ups, may support the identification of individuals at increased risk for all-cause mortality. Further prospective studies are needed to verify our first results on individual cancers and on a combined risk score.

P-08-06

LIVER CANCER INCIDENCE IN GERMANY, 2001-2015: AN AGE-PERIOD-COHORT ANALYSIS

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Introduction

Liver cancer incidence in Germany has increased over the last decade. Although liver cancer data are well analyzed, the effects of age, period, and cohort on incidence rates have not been reported to date. Thus, this study aimed to determine sex-specific age, period and cohort effects on liver cancer incidence rates in Germany between 2001 and 2015 of adults aged 30 years and older.

Methods

Incident liver cancer cases (C22, ICD-10) of Germany were obtained from the German Centre for Cancer Registry Data of the Robert Koch Institute. After assessing data quality, sex-specific age-period-cohort analyses were performed for data of the federal states Hamburg, Saarland, Mecklenburg-Western Pomerania, Saxony and Thuringia for five-year interval age groups and periods, combined, and separately for old and new federal states. Additionally, sensitivity analyses were performed by repeating the analyses without cases diagnosed by death certificate only (DCO).

Results

Age, period and cohort simultaneously influenced liver cancer incidence rates for women and men. Although liver cancer incidence was twice as high in men than women, age, period, and cohort similarly affected the development of both sexes' rates. Increasing age and progressing periods were related to upward incidence trends in females and males, while cohort effects indicated downward trends of incidence rates from oldest to youngest generations. There were no major differences between age, period and cohort effects on incidence rates of old and new federal states. In the sensitivity analyses, exclusion of cases diagnosed by DCO did not change the results.

Conclusions/Outlook

This study suggests that liver cancer risk increases with age and period but, in contrast, decreases for recent birth cohorts. Increasing sedentary lifestyles and rising obesity prevalence over time might explain period effects, whereas the implementation of different actions to reduce HBV and HCV infections probably contributed to the revealed cohort effects.

P-08-07

INCIDENCE AND MORTALITY TIME TRENDS OF COMMON CANCER TYPES BY SEX, AGE, AND STAGE FROM 1981 TO 2017 IN THE CANTON OF ZURICH, SWITZERLAND

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[2] University of Zurich, Epidemiology, Biostatistics and Prevention Institute, Zurich Zürich, Switzerland

Introduction

The population-based Cancer Registry Zurich, Zug, Schaffhausen and Schwyz is one of the oldest registries in Switzerland, registering tumours in the canton of Zurich since 1980. The aim of this study was to investigate trends in incidence and mortality for the most common types of cancer from 1981 to 2017.

Methods

We included malignant tumours of the breast (ICD10 C50), prostate (C61), colon/rectum (C18-C21), lung (C33-C34), and melanoma (C43), diagnosed in the canton of Zurich between 1981 and 2017. Age-standardised incidence and mortality rates were computed per 100,000 person-years using the 1976 European Standard Population. We used joinpoint regression analysis to assess incidence and mortality trends over time.

Results

In men, we observed a generally increasing incidence trend for prostate cancer and melanoma and a decreasing trend for colon/rectum and lung cancers. For prostate cancer, a joinpoint indicated a reversal of the trend (from increasing to decreasing) in 2002. In women, the trends for breast cancer, lung cancer and melanoma were increasing over time but remained stable for colon/rectum cancer. There were some differences in trends by age group and stage, such as an increasing trend for stage I and IV colon/rectum tumours in both sexes but a decreasing or stable trend for stage II and III tumours.

Cancer mortality decreased for all localisations in both men and women, except for melanoma in men (no clear trend) and lung cancer in women (increasing trend).

Conclusions/Outlook

Increasing trends for the incidence of prostate and breast cancer, as well as for melanoma, have been reported in other Western countries. While lung cancer incidence is decreasing in men, it is still increasing in women. Despite overall increasing incidence rates, the mortality rates are decreasing for all localisations except for lung cancer in women. The opposite direction of incidence and mortality trends may be due to better, more effective treatments and earlier detection.

POSTER

P-09 | POSTERSESSION 09

P-09-01

COLORECTAL CANCER INCIDENCE WITHIN 10 YEARS AMONG ONE MILLION PERSONS UNDERGOING SCREENING COLONOSCOPY: A CLAIMS DATA ANALYSIS

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Introduction

Even though colonoscopy reduces colorectal cancer (CRC) incidence and mortality, it is not perfect and CRCs also occur after colonoscopy. Prior studies on this were too small to describe CRC incidence after colonoscopy stratified e.g. by location and age and hardly had information on repeat colonoscopy. To contribute to these gaps, we aimed to analyze German claims data offering a large sample size, a long follow-up and some information on polyp detection (no histology).

Methods

Using the German Pharmacoepidemiological Research Database (short: GePaRD), we included persons with a screening colonoscopy between 2006 and 2017 and excluded persons with prevalent CRC. We defined 2 sub-cohorts according to procedures at baseline (BL) screening colonoscopy: Persons with snare polypectomy (cohort 1) and persons without polypectomy (cohort 2) and followed up the cohorts until end of insurance or death. CRCs coded within 6 months after BL colonoscopy were classified as detected CRCs at BL. We described cumulative CRC incidence after BL and CRCs detected at first repeat colonoscopy stratified by age and location (proximal vs. distal).

Results

Overall, 927,716 persons with a screening colonoscopy were included (cohort 1: 21%; cohort 2: 79%). The cumulative CRC incidence at 10 years was 1.46% (cohort 1) and 0.63% (cohort 2). In age group 55-64, the proximal to distal ratio of CRCs detected at first repeat colonoscopy was 0.75 (cohort 1) and 0.74 (cohort 2), in age group 65-74 it was 0.93 (cohort 1) and 0.80 (cohort 2), and in age group ≥75 years it was 1.33 (cohort 1) and 1.26 (cohort 2). The proportion of persons with CRC detected at first repeat colonoscopy increased by time since screening in cohort 1 (particularly after year 6), but not in cohort 2.

Conclusions/Outlook

With increasing age, more proximal than distal CRCs occur irrespective of BL finding at colonoscopy. The risk of developing CRC increases by time since screening in persons with polypectomy.

P-09-02

LONG-TERM QUALITY OF LIFE IN BREAST CANCER SURVIVORS 10 YEARS AFTER RADIOTHERAPY

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Introduction

Quality of life (QoL) has become a major focus of outcomes research. We aimed: (1) to assess the longitudinal course of QoL for 10 years in breast cancer survivors treated with radiotherapy (RT) after breast-conserving surgery (without chemotherapy); (2) to compare the long-term QoL of these cancer survivors with unaffected women (controls).

Methods

292 of 478 breast cancer patients diagnosed 1998-2001 and recruited into the German ISE study on radiosensitivity participated in examinations with a median of 137 months follow-up. QoL was evaluated at beginning of RT, during RT until 6 weeks after end of RT as well as at the 10-year follow-up using the EORTC QLQ-C30 questionnaire. Time course of QoL was assessed using Friedman test. QoL in long-term survivors was compared to that of controls from the MARIE study also followed-up for 10 years by the Wilcoxon test, stratified by three age groups.

Results

In longitudinal analysis, Global Health Status/QoL (GHS/QoL) declined during RT and improved within 6 weeks after RT. Deficits in most symptoms, including dyspnea, fatigue, insomnia, worsened during RT but then improved 6 weeks after RT. Patients reported significantly more symptoms such as dyspnea (mean 23.8 vs. 17.8, p=0.003), nausea/vomiting and diarrhea at the 10-year follow-up compared to 6 weeks after RT.

In cross-sectional analysis, GHS/QoL reported by long-term breast cancer survivors was comparable to that of the controls. However, across all age-groups, patients reported significantly ($p<0.05$) lower scores on emotional functioning as well as more symptoms including insomnia and nausea/vomiting compared to age-matched controls.

Conclusions/Outlook

Impaired QoL persists over years in breast cancer survivors treated with RT, in particular in patients younger than 65 years, and may be partly attributable to the breast cancer disease and/or its treatment. Potential impairment in QoL may require greater attention in follow-up care after treatment.

P-09-03

ADHERENCE WITH THE WCRF/AICR RECOMMENDATIONS FOR CANCER PREVENTION AND SURVIVAL IN BREAST CANCER PATIENTS AND POPULATION-BASED CONTROLS

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Introduction

About 15% of cancer deaths in women is due to breast cancer (BC). Lifestyle factors (e.g., limiting alcohol consumption, a balanced diet, being physically active) can improve cancer survival. This study examined the extent to which modifiable lifestyle factors impact survival in female patients with BC and unaffected women.

Methods

Data of BC (n=2908) and unaffected women (n=6077) from the MARIE study (Mamma Carcinoma Risk Factor Investigation), a population-based case-control study conducted in two regions of Germany (Hamburg and Rhine-Neckar-Karlsruhe), was used. A lifestyle adherence score (range 0-7; categorized as low (0-3), intermediate (>3-5), high (>5)) was created based on the 2018 World Cancer Research Fund/ American Institute for Cancer Research (WCRF/AICR) Cancer Prevention Recommendations and included body mass index, physical activity, dietary habits, and alcohol consumption. Cox regression models were used to analyze whether baseline lifestyle factors influenced mortality (including BC) among BC and unaffected women. Time-dependency was accounted for with the addition of a time x covariate interaction term.

Results

With a median follow-up of 12.6 years (range 0-15.5 years) there were 1263 deaths. Most of the study population (89%) had a lifestyle score ≤5. After adjusting for covariates, lifestyle scores >3-5 (HR=0.76, 95% CI=0.67-0.87) and 5+ (HR=0.51, 95% CI=0.40-0.65) had decreased mortality risk. Lifestyle score association did not differ by case vs control status (p>0.1). Smoking status, which was not included in the lifestyle score but a covariate in the model, increased mortality risk (current smokers: HR=1.83, 95% CI=1.59-2.12). Mortality risk was higher for BC than unaffected women (HR=7.80, 95% CI=5.82-10.47) and increased over time (p<.001).

Conclusions/Outlook

High engagement in healthy lifestyle factors substantially reduced mortality risk in women. Due to low adherence to the WCRF/AICR guidelines, health interventions are needed, especially for breast cancer survivors.

P-09-04

TEN-YEAR PREVALENCE OF OVERALL COLONOSCOPY AND SCREENING COLONOSCOPY USE IN GERMANY: A CLAIMS DATA ANALYSIS

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Introduction

Studies providing detailed information on colonoscopy use are important for the interpretation of patterns and trends in colorectal cancer (CRC) incidence and mortality. As there is a lack of such studies from Germany, we aimed to describe ten-year prevalence of colonoscopy use based on German health claims data.

Methods

Using the German Pharmacoepidemiological Research Database (short GePaRD; claims data from ~20% of the German population), we determined the ten-year prevalence of colonoscopy use for the year 2017. We determined this prevalence for any colonoscopy, screening colonoscopy (reimbursable from age 55 onwards) and diagnostic colonoscopy, stratified by sex, age, educational level and regional factors such as federal state, urban vs. rural place of residence and density of physicians in the district of residence.

Results

In men, the ten-year prevalence of colonoscopy use was as follows (not all age groups reported): 30–34 years: 8%, 40–44 years: 12%, 50–54 years: 21%, 55–59 years: 33% (screening: 10%), 60–64 years: 44% (screening: 23%), 70–74 years: 53% (screening: 23%), 80–84 years: 52% (screening: 15%). In women, the prevalences were similar, with differences mostly ≤3 percentage points. Also, in subgroups stratified by educational level or regional factors, prevalences were mostly similar or varied by ≤4 percentage points.

Conclusions/Outlook

In 2017, about 45–50% of men and women in Germany aged 60–84 years had any colonoscopy in the previous ten years, and about 11–26% had a screening colonoscopy. Our findings suggest no relevant social or regional disparities in the utilisation of colonoscopy in Germany.

P-09-05

CERVICAL CANCER AMONG ELDERLY WOMEN IN GERMANY

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Introduction

Cervical cancer (CC) is one of the most common cancer types in women worldwide. In Germany, annual opportunistic cytological CC screening is available to women from age 20. Since 2020, women from age 35 are eligible for additional HPV testing every three years. All women receive written information every five years up to the age of 65. There are two peaks in age-specific incidence of CC in Germany (in women aged 35-49 years and in elderly women) with limited interpretation due to lack of hysterectomy adjustment. Additionally, elderly women are often diagnosed with advanced disease and are more likely to die from CC. The aim of the present study is to investigate CC in elderly women.

Methods

The analyses were conducted using population-based cancer registry data provided by the German Centre of Cancer Registry Data (ZKfD) from 1999-2016. Proportion of elderly women among all CC cases, age group-specific incidence rates (IR) (20-34, 35-49, 50-64, 65+) and distribution of main histological types were assessed. To adjust rates for hysterectomy, we compared different approaches previously described in the literature. Estimates of the female population were corrected for the estimated prevalence of hysterectomy, or the rates were adjusted by multiplication with a correction factor.

Results

Six German cancer registries were included. In this population, 29.2% of all CC were diagnosed in elderly women (≥65 years). The IR of women ≥65 years of age was 15.9, 7.2 for women aged 20-34, 18.6 for age 35-50, and 16.5 for age 50-64, respectively. According to histologic group, 68.6% of elderly women were diagnosed with squamous cell carcinoma, 21.6% with adenocarcinoma and 9.8% others.

Conclusions/Outlook

This analysis provides a deep understanding of CC epidemiology in elderly women. IRs adjusted for hysterectomy are providing a more valid estimate of cervical cancer incidence in elderly women. Our results might help to adapt screening strategies to provide better screening and treatment to elderly women.

P-09-06

INCIDENCE AND POTENTIAL RISK FACTORS OF SECOND PRIMARY CANCERS AMONG 217,702 COLORECTAL CANCER SURVIVORS IN GERMANY

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Introduction

Among colorectal cancer (CRC) survivors, risk of a second primary cancer (SPC) is possible due to improvements in detection methods, treatment and survival. We determined incidence and potential risk factors of SPC following CRC compared to the general population in Germany.

Methods

Data from 217,202 CRC cases (ICD-10 C18-C20, aged ≥20 years) diagnosed between 1990 and 2013 from the German Centre for Cancer Registry Data (ZfKD) were used. Incidence of SPC defined as any cancers arising in a distinct site (excluding non-melanoma skin cancer) or of a different histology group was determined by stratified standardised incidence ratio (SIR) and 95% confidence intervals (Poisson distribution). Cause-specific cox proportional hazards models identified potential risk factors of SPC, taking death as a competing risk into account.

Results

Among CRC cases (median age 70 years), 18,751 SPCs occurred (8.63%). In males, SPC incidence increased by 36% (SIR: 1.36 [1.34-1.38]), 46% in females (SIR: 1.46 [1.43-1.49]) and almost doubled for males and females 50-65 years compared to the respective general population (SIR: 1.87 [1.80-1.93]; 1.94 [1.86-2.03] respectively). Incidence of SPC following colon cancer (C18) was significantly increased in the small intestine, stomach, liver, pancreas, bladder and kidney compared to the general population. Similar risk sites were observed following rectal cancer (C19, C20), particularly in cases <65 years. Older age ≥50 years, male sex and tumour size were potential risk factors of SPC.

Conclusions/Outlook

CRC survivors in Germany have an increased risk of SPC. Age, sex and tumour size appeared to be associated risk factors.

P-09-07

DEVELOPING AN INTERACTIVE APPLICATION FOR INFORMATION ON SKIN CANCER, RISK OF MELANOMA, AND SKIN CANCER SCREENING

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Introduction

Since 2008, all German statutory health insurance members aged 35 and older are entitled to biennial skin cancer screening. This public health measure's benefit is still questionable. The participation rate is low and knowledge deficits regarding the purpose of skin cancer screening have been observed. Studies show that people consider themselves healthy, don't observe changes in their bodies and generally don't know skin cancer screening. Current information material seems to be lacking in terms of information and user engagement.
We develop an interactive and visually appealing tablet, mobile, and web application to provide information on skin cancer, skin cancer screening, and the user's risk of developing melanoma, the most dangerous type of skin cancer. The application's users shall be enabled to make an informed decision for or against undergoing skin cancer screening.
The development process adheres to Human-Centred Design (HCD) principles and was preceded by a comprehensive requirements analysis, including general practitioners and dermatologists, practice staff, and a diverse set of the target demographics' representatives. User Experience (UX) is considered to be an essential concept for reaching acceptance and usage of the application.
Here, we present the intermediate status of the project and a working prototype of the application.

Methods

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Results

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Conclusions/Outlook

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P-09-08

COVID-19 PANDEMIC RELATED CHANGES IN HEALTH CARE UTILISATION, TREATMENT AND AFTERCARE OF BREAST CANCER – INTERIM RESULTS FROM A SURVEY AMONG YOUNG BREAST CANCER PATIENTS PARTICIPATING IN A THREE-WEEK REHAB PROGRAM

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Introduction

The COVID-19 pandemic affects our society and health care system in many ways. Priorisation and restrictions also affect diagnostics and treatment of cancer. Especially systemic tumour treatment, which is associated with side-effects and an increase in the risk of SARS-CoV-2 infections is more cautiously initiated than before. We aim to describe the effect of the pandemic on the care of young breast cancer patients.

Methods

Young women with localized breast cancer (UICC stage I-III, max. age 54 yrs) who participate in a three-week inpatient rehab program (Klinik Ostseedeich, Groemitz) are invited for a survey. In January 2021 we added pandemic-related questions (amongst others: utilisation of prevention measures, experienced changes in treatment and follow up) to the current questionnaire (Fig. 1). Distress is measured on a VAS ranging from 0 (not at all) to 10 (extremely distressed).

Results

As of April 2021, about 45% (30/66 recruited women; intended sample size n=150) of the women indicated pandemic-related changes regarding treatment and aftercare. Of those reporting changes and the specific measure during the pandemic, about 8% (systemic treatment) to 21% (radiation) reported changes in treatment and about 18% (follow up diagnostics/imaging) to 26% (lymph drainage/physiotherapy) reported changes regarding aftercare and follow up. When asked whether these pandemic-related changes resulted in distress, nearly 83% scored a value of $\geq$6 for the time frame “treatment period”, while 33% did so for the current time frame. Comparing the pre-pandemic with the pandemic situation, women reported markedly less use of prevention measures such as “check-up 35”, “skin cancer screening” or “control examination at dentist” for the latter period (Fig. 2).

Conclusions/Outlook

Based on this interim analysis, we found that oncological care of young breast cancer patients has been affected by the COVID-19 pandemic. The changes affected quality of life (*not shown*) and distress, but detriments seem to attenuate over time.

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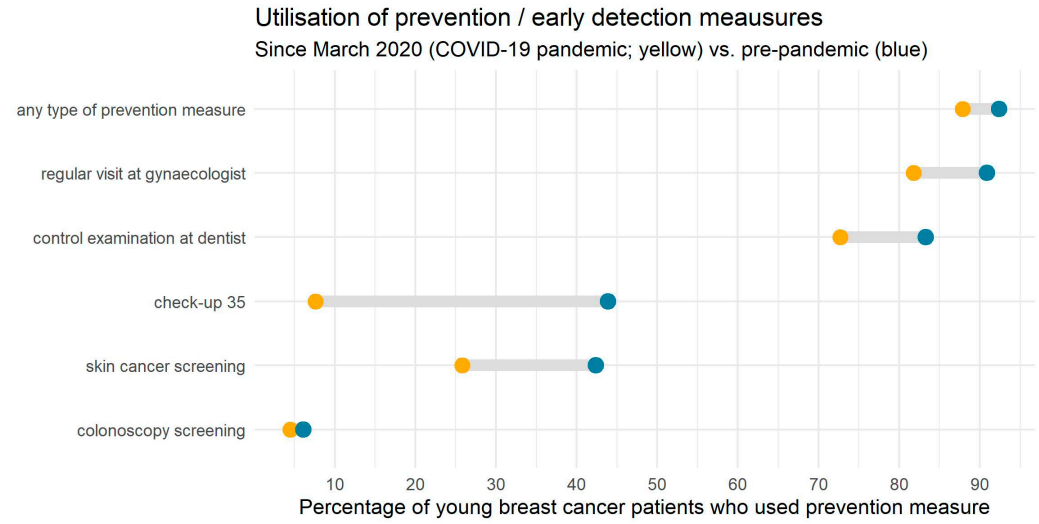
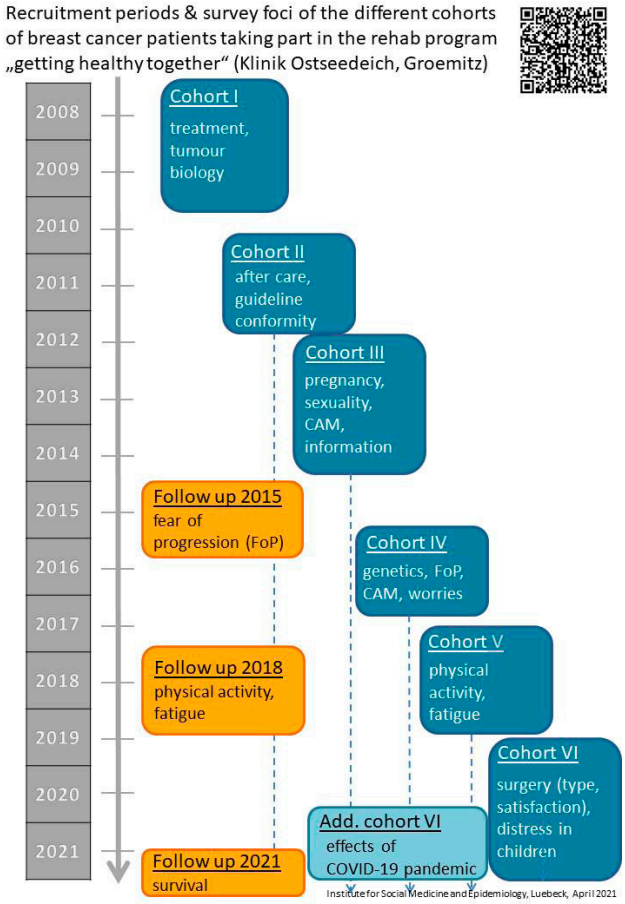


Utilisation of prevention & early detection measures before and during the pandemic
Participants of our survey had a maximum age of 54 years at diagnosis of breast cancer stage I, II or III.

The frequency of self-reported utilisation of prevention and early detection measures was clearly lower for the time period since March 2020 when compared to the pre-pandemic situation.



Recruitment periods and research foci
Since many years we invite young breast cancer patients who participate in the rehab program “getting healthy together” for a survey. In order to take part in the rehab program, treatment of breast cancer (surgery, radiation) has to be completed. Further, women have to be accompanied by at least one of their children aged <12 years.

About 500 women make up a cohort. Each cohort has it's own research focus. In January 2021 we added a pandemic-related questions to the current cohort IV questionnaire.

P-09-09

EXPOSURE ASSESSMENT AMONG AN ADULT POPULATION ON RADIATION THERAPY, CHEMOTHERAPY, AND OTHER CANCER THERAPIES IN CHILDHOOD – RESULTS FROM THE KIKME STUDY

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Introduction

Childhood cancer therapies are risk factors for the development of adverse health effects with second primary neoplasms (SPN) as the most detrimental outcome. Since no standardized questionnaire exists to retrospectively assess exposure to childhood cancer therapies in adult survivors, we aim to validate a new self-administered questionnaire.

Methods

Former childhood cancer patients with first primary neoplasm (FPN, N=340) only or SPN (N=101) were asked whether they had received cancer therapies. For validation, self-reports were compared to participants' therapy data from hospitals and clinical studies (N=242). Analyses for sensitivity, specificity, positive (PPV), and negative predictive value (NPV) were conducted. Cohens Kappa (ϰ) was used to measure data concordance and logistic regression to identify factors influencing the agreement. If the questionnaire is reliable, data from all participants will be used to analyse associations between therapy and health outcomes.

Results

For the SNP group, a perfect agreement was found between self-reports and therapy data for chemotherapy (CT, ϰ=1.0) while accordance for radiotherapy (RT) was lower but in a substantial area (ϰ=0.8). The FPN group reported less precise (CT: ϰ=0.7, RT: ϰ=0.3). However, sensitivity (CT: 1.0, RT: 0.9), specificity (1.0 each), and PPV (1.0 each) were at a high level. The agreement for CT and RT was influenced by cancer status (SPN vs. FPN; CT: OR=40.8 (95%CI 9.6; 174.0), RT: OR=4.1 (1.9; 8.7)), for CT by sex (men vs. women; OR=0.5 (0.3; 0.9)) and age at recruitment (>34.1 (median) vs. ≤34.1 years; OR=2.1 (1.2; 3.8)), and for RT by vocational training (academic vs. non-academic; OR=1.9 (1.2; 3.0)). Follow-up time and comorbidities had no impact on concordance.

Conclusions/Outlook

Many years after therapy, the new questionnaire was reliable for a retrospective assessment of binary exposure to CT in childhood and for RT in the SPN group. For the FNP group, self-reported RT was very imprecise and should not be used for further analyses.

P-09-10

TREATMENT RELATED RISK FACTORS FOR SECONDARY NEOPLASMS IN CHILDHOOD CANCER SURVIVORS IN GERMANY: METHODS AND DESIGN OF THE STATT PROJECT

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Introduction

While survival from childhood cancer has improved considerably over the last decades, former cancer patients are at a high risk of various severe late effects, including second primary neoplasms (SPN). The risk for SPNs differs by treatment and type of first primary neoplasm (FPN). The precise dose-response relationship between chemotherapy and the risk of a SPN is not yet fully understood. We conduct a case control study with SPN and matched FPN, using retrospective therapy data. The effect of radiotherapy is studied in the affiliated SCAR-study (Second Cancer after Radiotherapy).

Methods

Data retrieval started in 2016. In total, 1224 childhood cancer survivors with a FPN diagnosed before age 15 and subsequent SPN, selected by a set of inclusion criteria, were identified in the German Childhood Cancer Registry (GCCR) for the years 1980-2014 and then matched with two FPN controls (risk set sampling with replacement). Treatment data was retrospectively acquired from all available data sources including therapy studies, archival data, and former treating hospitals. As a next step, this data will be pseudonymized by an external trust center.

We aim to analyze the effects of cumulative doses of chemotherapy substances, accounting for radiotherapy, on the risk of developing a SPN. Fractional Polynomials, which are adapted for data with a spike at zero (SAZ), will be applied to model the dose-response relationships.

Results

For 83% of the match groups the retrospective treatment information was successfully tracked (data available for the case and at least one control). We will present details of the study design, descriptive data and the regression analysis methods.

Conclusions/Outlook

Fitting dose-response curves by substance will improve our understanding of the future risk for childhood cancer survivors and allow us to identify groups of particular risk of a SPN, which will be informative for evidenced-based survivorship care.

P-09-11

MULTIMORBIDITY AND COMORBIDITY IN MIDDLE-AGED AND OLDER WOMEN IN URBAN TANZANIA

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Introduction

Multimorbidity, the coexistence of two or more chronic conditions, amplifies negative implications of illness on the individual and community level. A rapid increase in multimorbidity is expected for low-income countries due to aging populations and a growing burden of non-communicable diseases. We studied 15 chronic conditions of three health areas (physical and mental health conditions, infectious diseases) among aging women in urban Tanzania to assess the prevalence of multimorbidity and common comorbidities.

Methods

A cross-section of 1531 women aged 40+ years was chosen randomly from the Health and Demographic Surveillance System in Dar es Salaam and surveyed between June 2017 and July 2018. Diagnoses of chronic conditions were based on measurements, screening instruments and self-report. Associations of chronic conditions and multimorbidity with age were assessed in multivariable logit and linear regression analyses.

Results

Conditions with the highest prevalence estimates were hypertension (50%), anemia (43%), obesity (40%), depressive symptoms (32%) and diabetes (14%). These conditions were also the most common comorbidities to all assessed index conditions. The proportion of multimorbid women was 55% at age 40-45 and increased for all age groups up to 87% at age 70+. The share of women with three or more conditions was similarly large between ages 50-69 and increased further for ages 70+. Age was associated with multimorbidity (2+ conditions) and discordant multimorbidity (2+ health areas affected).

Conclusions/Outlook

Multimorbidity was common among the studied middle-aged and elderly women in urban Tanzania. It was increasing with age, which was largely due to an increased risk for physical conditions and a surge in mental health conditions in high age. Strategies to provide women with appropriate health care to age healthily are necessary. Creating awareness among healthcare workers for common comorbidities as presented in this study could be one strategy to expand care for multimorbidity.

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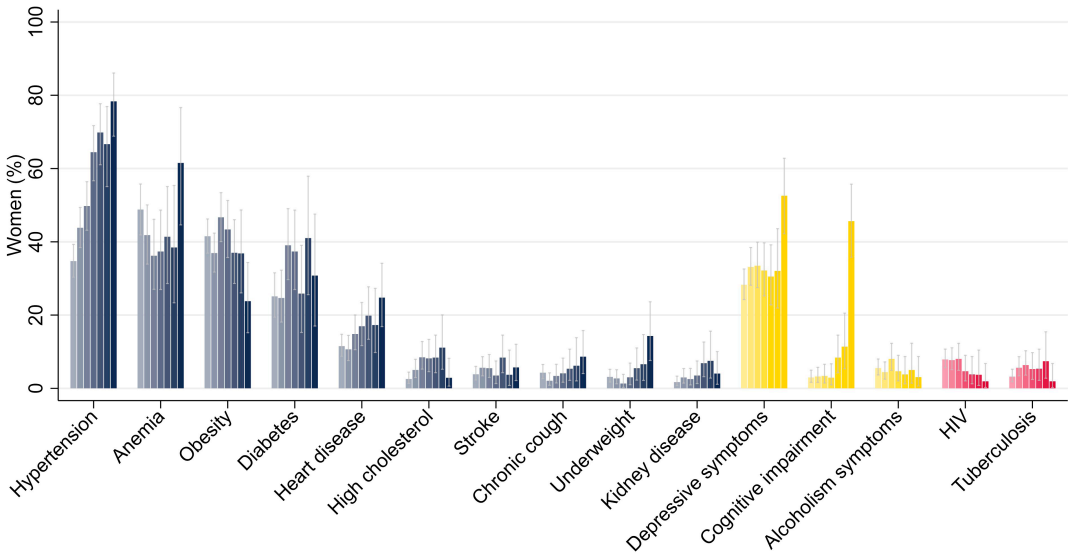

Figure 1: Prevalence of chronic conditions
Prevalence of 15 chronic conditions in three health areas among middle-aged and elderly women in urban Tanzania by age-group. The color intensity of each coloumn indicates the age group, from light to strong color: 40-44, 45-49. 50-54, 55-59, 60-64, 65-69, 70+

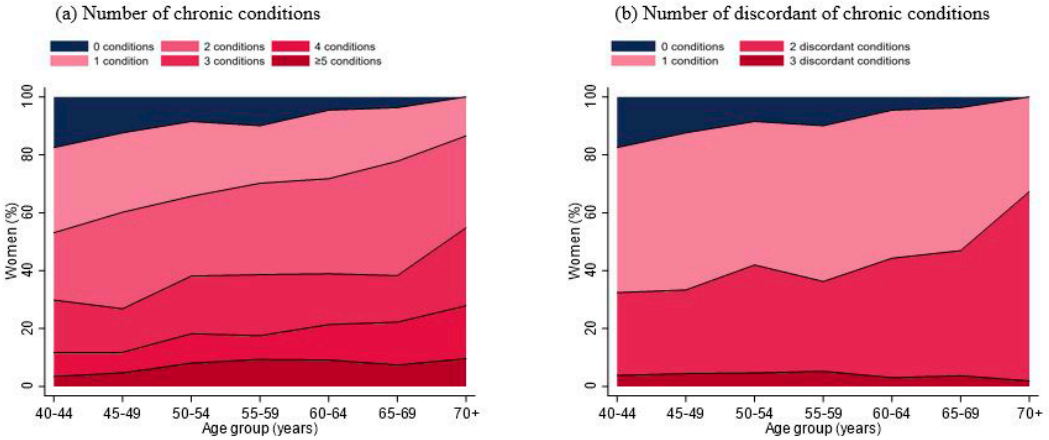

Figure 2: Multimorbidity by age group
See a) for percentage of women aged 40 + in urban Tanzania with 0 to >= 5 chronic conditions by age group.

See b) for percentage of women aged 40 + in urban Tanzania with 0 to 3 discordant chronic conditions (conditions of different health areas).

P-09-12

VIGOROUS PHYSICAL ACTIVITY AT OLD AGE COMPENSATES NEGATIVE LONG-TERM EFFECTS OF CHILDHOOD DISEASE: A COHORT STUDY BASED ON SHARE

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Introduction

Literature repeatedly shows that conditions in early life strongly relate to health in later life. Our study analyzed (1) how childhood disease influences health in late life and (2) whether vigorous physical activity (VPA) can moderate the association between disease in childhood and health in late life.

Methods

We useda longitudinal sample from the Survey of Health, Ageing and Retirement in Europe (SHARE) waves 2-7 (2006-2017) with 33,138 cases from 8,072 respondents aged 65+ at baseline from 13 countries. We applied binary logistic regression models to explore changes in Instrumental Activities of Daily Living (IADLs) using retrospective information on childhood diseases, as well as later-life information on VPA and sociodemographic characteristics.

Results

Childhood cardiovascular disease (CVD) (OR=1.38; p=0.054) and childhood neurological disease (ND) (OR=1.18; p=0.029) were risk factors of faster declines in IADLs later in life. In contrast, childhood infectious disease had a positive health effect (OR=0.86; p<0.001). VPA was associated with a lower risk of IADL-decline (OR=0.26; p<0.001) and largely compensated the negative health effects of childhood diseases on late-life health: (1) CVD, Inactive: OR=1.45; 95% CI=1.00–2.09 and CVD, Active: OR=0.29; 95% CI=0.13–0.66; (2) ND, Active: OR=0.38; 95% CI=0.29–0.50 and No ND, Active: OR=0.25; 95% CI=0.23–0.27.

Conclusions/Outlook

Our study showed that childhood disease has a negative long-term effect on IADL-development later in life, while VPA is generally beneficial. Detrimental effects of childhood diseases can be compensated by VPA. Health policies need to target both early health and VPA in later life.

P-09-13

LONG-TERM MORTALITY OF PATIENTS WITH OSTEOARTHRITIS AFTER JOINT REPLACEMENT: PROGNOSTIC VALUE OF PRE- AND POSTOPERATIVE PAIN AND FUNCTIONALITY

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Introduction

To investigate the extent to which osteoarthritis (OA)-specific instrument values, (i.e. “The Western Ontario and McMaster University Osteoarthritis Index (WOMAC)) and generic painand functionality (The Visual Analogue Scale (VAS), The Hanover Functionality Status Questionnaire (FFbH)) measured before and 12 months after arthroplasty, are associated with risk of long-term mortality in a cohort of patients with advanced OA of the hip or knee.

Methods

The Ulm Osteoarthritis Study is a prospective cohort study of OA patients with unilateral total hip or knee replacement between 01/1995 and 12/1996. Correlation coefficients were calculated to describe the agreement between the different instruments. Mortality was assessed during follow-up (last update: 07/2019). Cox proportional regression models were used to estimate hazard ratios (HR) for mortality after adjustment for covariates.

Results

Arthroplasty went along with a clear reduction in pain and improved functionality throughout all instruments in the n=706 included patients. The results of the adjusted Cox models showed no relationship of baseline as well as of follow-up joint-specific WOMAC measurements with long-term mortality. However, an independently increased risk for mortality was found with the generic functionality instruments. In the final adjusted model HR for the 12-month followup value was 1.79 (95%-confidence interval (CI) 1.24-2.60)) when the group with clinically relevant impairment was compared to reference group.

Conclusions/Outlook

Poor functionality based on the generic assessment instrument was associated with increased long-term mortality suggesting that functionality impairments in daily life activities may be of more importance for long-term survival than OA-specific impairments in this group of patients.

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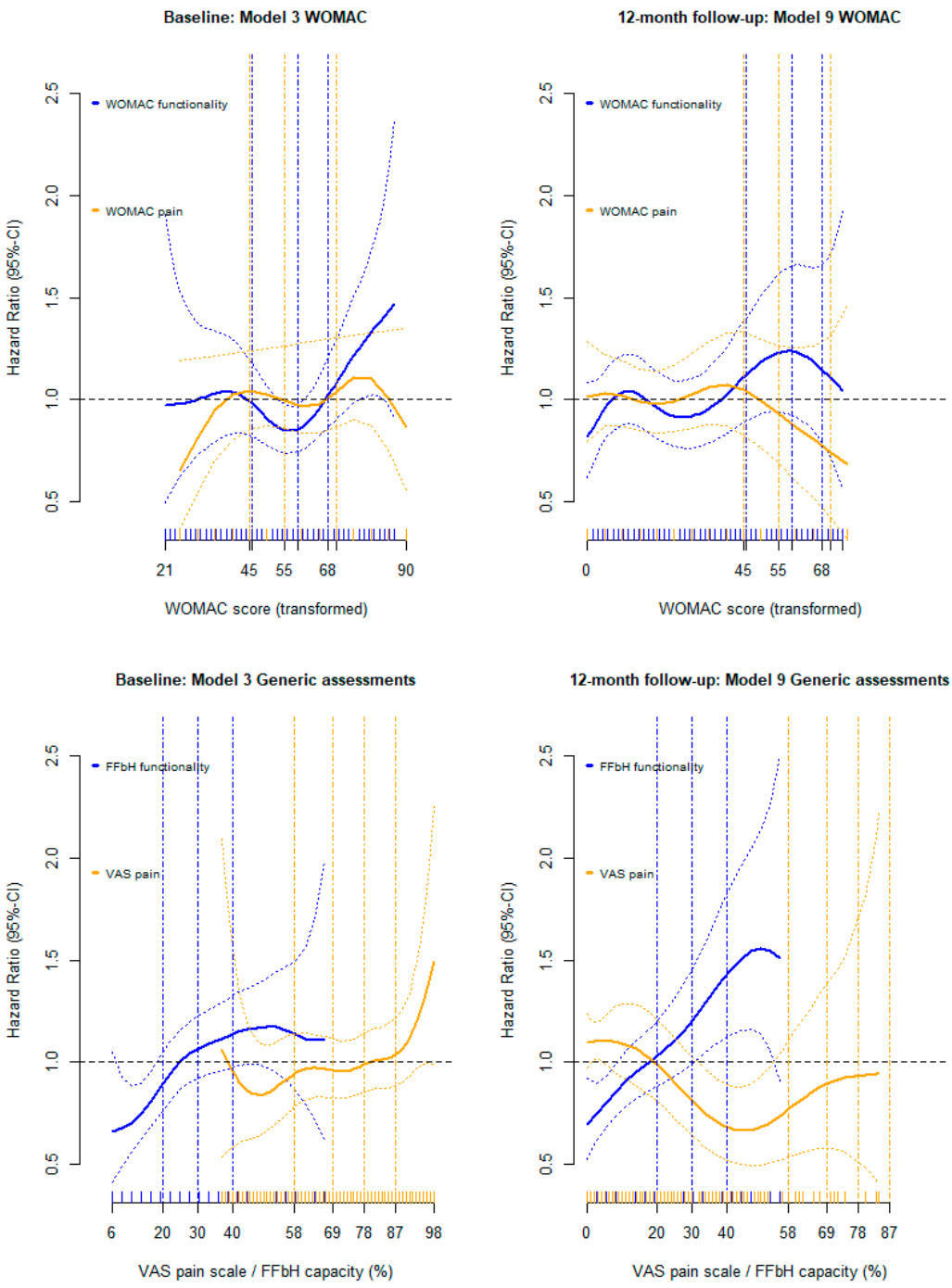

Hazard ratio splines (with 95% CB) of combined WOMAC and generic (VAS/FFbH) assessments
At baseline and follow-up (model 3 and model 9); transformed arthritis-specific WOMAC pain and functionality scale (0-100); generic VAS pain and FFbH functionality values range from 0 to 100; vertical dotted lines: category boundaries; short lines above x-axis: RUG plot, distribution of values; CB: confidence band.

P-09-14

COMPOSITIONAL SURVIVAL ANALYSIS AND ISOTEMPORAL SUBSTITUTION: IMPLEMENTATION ON TIME USE PROFILES OF THE ACTIFE STUDY COHORT TO ASSESS ALL-CAUSE MORTALITY IN OLDER ADULTS

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Introduction

In the past years, compositional data analysis has gained widespread acknowledgement in determining associations between time use profiles and health outcomes. Adding to the newer perspective, compositional data analysis and the Cox proportional hazards model are joined to examine an association between all-cause mortality and a threefold composition including standing, sedentary behaviour (SB) and walking in a cohort of older people.

Methods

Health data and accelerometer-measured 24-hour activity profiles are part of the prospective ActiFE Ulm study providing data on 1271 community-dwelling individuals aged 65 years and older. In R, compositional activity data of the cohort is suitably transformed into three rotations of pivot coordinates, which are added to differently adjusted Cox models to assess each behaviour relative to the remaining behaviours. For compositional isotemporal substitution, new hypothetical compositions are formed based on the mean composition and used to predict change in hazard ratios.

Results

Results suggest a positive association between SB, which is predominantly pursued, relative to remaining behaviours and all-cause mortality after adjustment for age and sex ($p=0.003$) and further covariates ($p=0.032$). A negative association between walking relative to remaining behaviours and all-cause mortality is found for both models ($p<0.001$). Replacing either SB or standing with walking significantly lowers the hazard ratio around the average composition, while the HR increases for the opposite substitution.

Conclusions/Outlook

Research shows mixed results for health impacts of time spent standing, which has sparsely been added to time use compositions and should be evaluated further. While SB and standing behave similarly in the analysis, the importance of walking relative to remaining behaviours clearly stands out as small changes contribute to significant shifts in survival probability for older adults.

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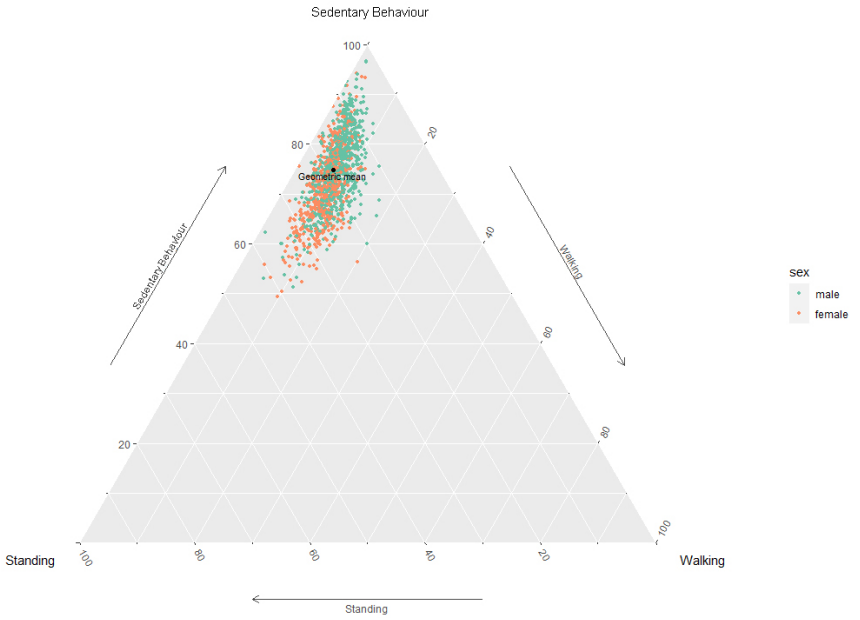
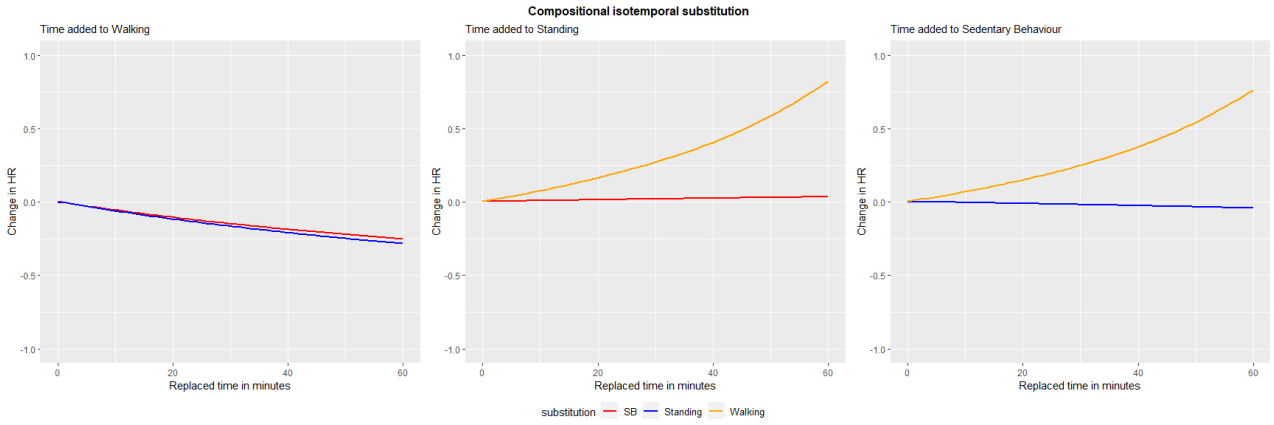


Ternary plot of the activity composition
The ternary plot ranks the study cohort's individual movement behaviour profiles according to the proportion spent in the three observed activities. It displays the limited simplex space that the data can fit into and is a suitable tool for illustrating the distribution of data points. The plot shows imbalance between movement behaviours and gravitation of data points towards sedentary behaviour. Especially men seem to spend higher levels in SB, while women slightly shift towards higher levels of standing. The majority of the cohort seems to spend a low amount of time walking.



Compositional isotemporal substitution

Starting from the mean composition, time up to 60 minutes is added to one activity, while it is subtracted from another. With these newly obtained compositions, hazard ratios are predicted based on a previously set up model adjusted for age and sex.

P-09-15

EFFECT OF AN OSTEOPOROTIC FRACTURE PREVENTION PROGRAM ON FRACTURE INCIDENCE IN ROUTINE CARE.A CLUSTER-RANDOMIZED TRIAL

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Introduction

Fractures are a major health problem in aging societies. Preventive approaches combining bone health and fall prevention are rare. The osteoporotic fracture prevention program in rural areas (OFRA) is a health care fund-driven program for older people in randomly selected districts in Germany. One of the main components of the program were falls prevention classes. The aim of this study was to evaluate this complex preventive intervention in a routine health care setting.

Methods

This cluster-randomized trial took place in 186 administrative districts in five federal states, 47 districts served as intervention districts, and 139, as controls. Within these districts, we included a) all community-living women and men aged 70- <85 years with prior fragility fractures and b) all community-living women aged 75- <80 years. The analysis used routine data collected by a health insurance company. The primary endpoint was all fragility fractures combined, fracture types were additional endpoints. Follow-up time was 12 months. Cox frailty models were used for comparative analyses.

Results

9,408 individuals were approached, 27,318 individuals served as controls. The mean age was 78.7 years. Of those approached to participate, nearly 30% joined the exercise classes. The incidence of fragility fractures did not differ between the intervention and the control group (HR 0.96; 95% CI 0.82-1.13). However, hip fractures, the most frequent fracture type, were reduced in the intervention group (HR 0.76; 95% CI 0.59-0.99).

Conclusions/Outlook

A comprehensive fracture prevention program for older people living in rural areas was implemented. Hip fractures but not the primary endpoint of all fragility fractures combined were reduced by the program.

WORKSHOPS

WS-01 | MAINTAINING PATIENT-CENTERED HEALTH CARE DURING PANDEMICS AND OTHER PUBLIC HEALTH CRISES

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The Covid-19 pandemic has a significant impact on different parts of society. Challenges are particularly pronounced in the health care system because patients in these settings may be susceptible for a severe course of COVID-19 and measures necessary to decrease the spread of the virus may affect the very act of caregiving. In recent months, health care providers have developed various strategies to approach a new health care reality and to address fears and reservations of health care staff and health care users. Little is known about what these strategies are, how they are perceived by stakeholders and how well they are able to take into account the diversity in needs and beliefs.

Using mixed-method case studies from different sectors of health care, the aim of the workshop is to explore the strategies developed by providers in different settings on the individual and organizational level in response to the health-related, economic, ethical and operational challenges posed by the COVID-19 pandemic and to examine the perception of these strategies, the expectations as well as perceived stressors among employees and health care users with respect to health care in times of a pandemic.

For this purpose, the workshop reports findings from scoping reviews of existing national and international guidelines/recommendations for different sectors, qualitative interviews with patients and health care staff, document analyses of provider websites, as well as representative quantitative online surveys of health care facilities in Germany. In addition, it illustrates what can be learned from strategies of infection control and pandemic management employed in confined spaces, such as reception centers for refugees.

Following the input presentations, participants will be invited to discuss the recommendations provided by the speakers with respect to their implementation as well as potential implementation barriers in two parallel (virtual) Learning Cafés. The results will be summarized and consented in a final plenary round.

WS-01-01

ADDRESSING CHALLENGES OF THE COVID-19 PANDEMIC IN NURSING, PALLIATIVE AND HOSPICE CARE. AN ONLINE SURVEY OF INPATIENT FACILITIES IN GERMANY

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Introduction

In times of COVID-19, nursing, palliative and hospice care facilities face numerous challenges. Necessary infection control measures can lead to social isolation of patients and also constitute a significant burden for health care staff. To address these challenges, health care facilities need to implement innovative strategies that consider the diversity of all stakeholders. The aim of the present study was to examine these strategies and to identify problems in the implementation of existing recommendations by means of an online survey of inpatient nursing, palliative and hospice care facilities in Germany.

Methods

Facility managers of all inpatient nursing (n=10.086), palliative and hospice care facilities (n=632) in Germany were invited via e-mail in March/April 2021 to participate in a quantitative online survey. After two reminders, responses were received from a total of 1318 facilities (response rate= 12.3%). The data was analysed descriptively.

Results

The majority of facilities had implemented various infection control measures (68.7%). Some facilities reported problems in implementing the recommendations provided by the Federal Ministry of Health in Germany with respect to visits due to lack of space and staff capacity and limited availability of rapid tests for visitors. Different strategies, such as the in-house production of protective equipment (18%) and internal reallocation of staff (40.5%) were used to address the shortage of material and staff resources. In order to better cope with the pandemic, the facilities emphasized the need for sufficient provision of protective materials (41.3%) as well as for uniform federal guidelines and recommendations (40.9%).

Conclusions/Outlook

The results indicate that nursing, palliative and hospice care facilities have developed a variety of strategies to deal with the challenges of the pandemic. Nevertheless, there are problems in following recommendations which must be addressed by adequate support measures.

WS-01-02

PERSPECTIVES OF PATIENTS IN REHABILITATIVE CARE DURING THE COVID-19 PANDEMIC. A QUALITATIVE STUDY

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Introduction

Medical rehabilitation facilities face numerous challenges in how to ensure patient-centered rehabilitation while simultaneously minimizing the risk of infection during COVID-19 pandemic. To address these challenges, strategies must be employed to meet the needs of various stakeholders. The aim of the present qualitative study was to explore how strategies developed by outpatient and inpatient medical rehabilitation facilities are perceived by (potential) patients in the rehabilitative care setting in Germany.

Methods

Interviewees were recruited through social media as well as through network-based snowball principle. A total of 19 qualitative telephone interviews have been conducted supported by a topic guide. Interviews covered perceived changes in rehabilitation in the wake of the pandemic, strategies developed to manage the pandemic in the facilities as well as needs, potential challenges and expectations of patients towards rehabilitation during a pandemic. The interview data was examined by means of qualitative content analysis.

Results

Findings indicate that medical rehabilitation facilities have developed a variety of strategies for dealing with the pandemic. Hygiene measures such as wearing mouth-nose covers and regularly disinfecting hands are considered reasonable and appropriate by health care users. Regular checks for COVID-19-related symptoms as well as antigen-based rapid screening for COVID-19 receive approval from the interviewees as well. In contrast, the cancellation of group activities, of communal meals and leisure activities, represent a major burden for rehabilitative patients.

Conclusions/Outlook

Users of rehabilitation seek a balance between infection control measures for their own health protection and psychosocial freedom in form of preserving social interaction in medical rehabilitation. Rehabilitation facilities should implement measures in a way that provides the necessary safety precautions but still preserves human needs to ensure patient-centered and successful care.

WS-01-03

MEASURES OF INFECTION CONTROL IN RECEPTION CENTERS FOR ASYLUM SEEKERS DURING THE COVID-19 PANDEMIC IN GERMANY. RESULTS FROM A SCOPING REVIEW

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Introduction

Asylum seekers in Germany are at an increased risk of infectious diseases, because they are often housed in reception centers where people share rooms and social distancing is difficult. The consequences of this situation became most prominent in the context of the current pandemic.

Therefore, this project aims to explore how asylum seekers' risk of infection is shaped by their living conditions, which measures are recommended to prevent outbreaks and manage outbreaks once they occur, and how these measures are currently implemented.

Methods

We conducted a scoping review using Pubmed, CINAHL, and Web of Science to retrieve publications on outbreaks of infectious diseases in accommodations for asylum seekers. We included all English and German literature published after 1990.

Results

The literature search resulted in 1162 publications, of which 36 were selected for final analysis. Of those, 16 publications are guidelines and recommendations concerning the management of COVID-19 outbreaks, 6 publications report on outbreaks of COVID-19, and 14 report on outbreaks of other infectious diseases in reception centers.
The publications on other infectious diseases illustrate that outbreaks of infectious diseases have been a problem in reception centers well before the current pandemic, and name crammed living conditions as the main reason. These publications cover reports on outbreaks of measles, varicella, meningitis, shigellosis, norovirus, hepatitis A, scabies, and Louse-born relapsing fever.
The publications on Covid-19 outbreaks show that the implementation of measures recommended for the general population is challenging and that the infrastructure and overpopulation of many shelters impede the implementation of effective measures for the prevention and management of COVID-19 outbreaks.

Conclusions/Outlook

Shared accommodation in reception centers impedes the implementation of national and international guidelines for the prevention and management of outbreaks of COVID-19, and therefore should be avoided.

WS-02 | NACHWUCHS TRIFFT PRAXIS: BERUFS- UND KARRIEREWEGE IN EPIDEMIOLOGIE UND PUBLIC HEALTH

Gemeinsamer Workshop der Nachwuchsgruppe Epidemiologie der Deutschen Gesellschaft für Epidemiologie (DGEpi) und des Nachwuchsnetzwerks Öffentliche Gesundheit (NÖG)

L. Arnold[1, 2], **F. Fischer**[3, 4, 5]

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[5] Charité - Universitätsmedizin Berlin, Berlin, Deutschland

Im Zuge der COVID-19-Pandemie erfährt die Öffentliche Gesundheit in Deutschland sehr großes Interesse. Dies wird sich auch auf die Attraktivität von Public Health als Berufsfeld auswirken. Im Rahmen dieses Workshops sollen daher Nachwuchswissenschaftler*innen in den Bereichen Epidemiologie und Public Health/Öffentliche Gesundheit mit Praktiker*innen und Wissenschaftler*innen aus verschiedenen Bereichen ins Gespräch kommen, um sich über Berufs- und Karrierewege in Deutschland auszutauschen.

Zentrale Fragen des Workshops sind:

- In welchen Positionen und Aufgabenbereichen können Nachwuchsfachkräfte mit Expertise in Epidemiologie und Public Health tätig werden? Welche Möglichkeiten bietet eine Tätigkeit in Berufsfeldern mit Bezug zu Epidemiologie und Public Health (z.B. Öffentlicher Gesundheitsdienst, Wissenschaft und Politik[-beratung]) auf lokaler, regionaler oder nationaler Ebene?
- Welche Erwartungen vonseiten der Public-Health-Praxis bestehen an den zukünftigen „Nachwuchs“? Welche Anregungen möchten Vertreter*innen der Public Health-Praxis potentiellen Bewerber*innen mit auf den Weg geben?
- Was erwarten im Gegenzug Public-Health-Nachwuchskräfte von der zukünftigen Berufspraxis? Wie erhoffen sie, die erworbene Expertise in spätere Aufgabenbereiche einbringen zu können? Welche Anregungen möchten Sie potentiellen Arbeitgeber*innen hinsichtlich erlernter Fachkompetenzen sowie möglicher Beschäftigungsinhalte mitgeben?

Im Rahmen des gemeinsamen von der Nachwuchsgruppe Epidemiologie der DGEpi und dem NÖG organisierten Workshop versuchen wir diese und weitere Fragen im offenen Dialog zwischen Nachwuchs, Praxis und Wissenschaft zu klären.

Hierzu werden Vertreter*innen aus verschiedenen Bereichen 1) einen Einblick in den eigenen Karriereweg geben und verschiedene Praxisfelder vorstellen sowie 2) gemeinsam mit den Teilnehmer*innen im Rahmen einer Paneldiskussion Zukunftsvisionen für ein gemeinsames Arbeits- und Aufgabengebiet Öffentliche Gesundheit in Deutschland andiskutieren.

WS-03 | JOINT-WORKSHOP OF AG HEALTH GEOGRAPHY AND AG EPIDEMIOLOGIE DES ALTERNS: DEVELOPMENT OF A WALKABILITY INDEX FOR OLDER ADULTS

Strobl R., Koller D.

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Walkability conceptualizes objective or subjective barriers and facilitators for pedestrian mobility in a neighbourhood setting. This includes the objective built environment such as such as the availability of sidewalks as well as more subjective issues such as the presence of potential hindering factors (i.e. not-well-lit subways), and the local demographic structure. Therefore, walkability can be approached objectively through maps and geodata, as well as subjectively through surveys and neighborhood explorations. Generally, walkability is examined through a whole-population perspective, but it is also explored for specific sub groups such as children, older adults, or people with disabilities.

Exploring walkability using the specific perspective of older adults can be of particular interest. Active mobility and social participation until an old age contribute to healthy aging. Facilitators and barriers of these aspects should be considered for the planning of neighborhoods and be included in walkability concepts for older adults.

To date, concepts of walkability for older adults have focused on singular aspects in the environment, e.g. on accessibility of green spaces or neighborhood walks. To adequately measure walkability for the older population, all relevant aspects must be considered. In addition, effects of chronic health conditions and functional decline have to be embedded. However, a comprehensive framework to describe and investigate walkability for aged adults is still missing.

To address this issue, a joint workshop of the DG Epi groups Epidemiology in older age (AG Epidemiologie des Alterns) and the AG Health Geography assembled a first collection of potentially relevant topics and items. These were combined with findings from a systematic literature review and submitted to a three-step Delphi consensus process.As a mutual basis this workshop will present the results of this Delphi process. We then want to invite experts on index-building and index-implementation to present their research and experiences and to jointly discuss the possibilities to build an index to evaluate the walkability of a neighborhood for older people. In addition, we want to include the perspective of the local community by inviting experts in city planning or local mobility programs. The overall aim is to enable scientific exchange and use this joint knowledge to build an Index for Walkability in the Aged and use this index in community or neighborhood settings

WS-03-01

WALKABILITY AROUND SENIOR HOUSING ESTATES – COMPARATIVE ANALYSIS OF TWO COMMON WALKABILITY MEASURES

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Introduction

Walkable communities may contribute to social participation, successful aging, and older adults' active life. However, physical activity associations vary between studies that applied either objective or perceived walkability measures. Therefore, this study aimed compare two common walkability measures in a convenience sample of senior housing residents in Bielefeld, NRW.

Methods

A total of 65 adults aged 72.2 ± 8.6 years answered a survey including the „Neighborhood Physical Activity Questionnaire" (NPAQ) and the "Neighborhood Environment Walkability Scale" (NEWS). Based on the NEWS items and scoring protocols, subscales were calculated and a composite score of overall perceived walkability was computed. Pedestrian network buffer around senior housing estates were used to calculate the walkability index established by Frank et al. The composite score of four walkability attributes was computed from standardized z-scores of these measures with a double weighting for connectivity.

Results

The walkability index varied -5.0 to 8.5 points for pedestrian network buffers and -7.5 to 5.5 points for neighborhood perceptions. The mean difference was not statistically significant. However, a poor level of agreement (ICC = 0.33) was found between both walkability indices. Regression analyses adjusting for sociodemographic characteristics and self-rated health showed that a one-point change in objective walkability was associated with an estimated increase of 7.58 min per day in total walking.

Conclusions/Outlook

This study supports that walkable communities contribute to walking behavior in older adults. However, findings also indicate poor agreement between objective or perceived walkability measures. Therefore, more representative studies should examine potential influencing factors for deviating neighborhood perceptions and examine the agreement with objective comparisons for other NEWS subscales and additional measures that add to a more comprehensive assessment of activity- and age-friendly communities.

WS-03-02

ERSTELLUNG EINES WALKABILITY-IM-ALTER-INDIKATORENSETS MITTELS DELPHI-BEFRAGUNG

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Introduction

Walkability umfasst objektive oder subjektive Einflussfaktoren auf die Fußgängermobilität einer Nachbarschaft. Im Allgemeinen wird Walkability aus der Perspektive der Gesamtbevölkerung untersucht, aber auch für bestimmte Untergruppen wie Kinder, ältere Erwachsene oder Menschen mit Behinderungen wird sie erforscht. Um Walkability spezifisch für die ältere Bevölkerung zu erfassen, wurde im Anschluss an einen Workshop (2018) und einer Literaturrecherche eine 3-stufige Delphi-Befragung durchgeführt.

Methods

Zur Delphi-Befragung wurden Expert_innen eingeladen, die beim Workshop waren, im deutschsprachigen Raum zu Walkability und Mobilität im Alter publiziert hatten oder die Einladung von Kolleg_innen weitergeleitet bekommen haben. Aus den Ergebnissen des ersten Workshops und der Literaturrecherche wurden 153 Indikatoren extrahiert. Alle Indikatoren wurden von den Expert_innen hinsichtlich ihrer Relevanz für Walkability im Alter bewertet. Der finale Indikationensatz wurde in einem 3-stufigen Delphi-Verfahren bestimmt. In den ersten beiden Stufen wurde der Indikatorensatz mittels Mehrheitsentscheidungen bestimmt, in der 3. Stufe wurde die spezifische Relevanz jedes Items auf einer Likert Skala bewertet. Neben der Bewertung zur Relevanz zu Walkability im Alter wurden die Teilnehmer_innen gebeten, Indikatoren zu kommentieren oder potentiell fehlende Indikatoren zu benennen.

Results

Insgesamt nahmen 28 Expert_innen an der ersten Runde teil, 23 in der zweiten und 20 in der dritten. Nach Abschluss der Befragung konnten 81 Indikatoren in das finale Item-Set aufgenommen werden. Für die künftige Anwendbarkeit wurden die Kategorien in eine Prioritäten-Reihenfolge gebracht. Bebaute Umwelt und Verkehrsinfrastruktur wurde als relevanteste Hauptkategorie angesehen, die Fußwegeinfrastruktur als relevanteste Unterkategorie.

Conclusions/Outlook

Im Workshop werden die Ergebnisse des Delphis detaillierter vorgestellt und zur Diskussion gestellt. Ziel der Diskussion ist es, einen anwendbaren und praxisrelevanten Index zu bilden.

WS-03-03

FUNKTIONSFÄHIGKEIT IM ALTER UND DEREN BERÜCKSICHTIGUNG BEI DER WALKABILITY – ERGEBNISSE EINER EXPERTENBEFRAGUNG

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Introduction

Walkability ist ein Konzept, welches die Einflussfaktoren der bebauten und sozialen Umwelt auf die Mobilität zusammenfasst. Die individuelle Mobilität hängt neben Umweltfaktoren auch von individuellen Eigenschaften ab, wie der Funktionsfähigkeit. Funktionsfähigkeit ist ein Oberbegriff, der die körperlichen Funktionen wie auch Teilhabe und Aktivitäten des täglichen Lebens umfasst. Nach dem bio-psycho-sozialem Modell steht die Funktionsfähigkeit im direktem Wechselspiel mit Kontextfaktoren. Während Leistungsfähigkeit die theoretische Fähigkeit beschreibt, eine Aufgabe oder eine Handlung durchzuführen, versteht man unter der persönlichen Leistung (Kapazität) die Möglichkeit eines Menschen, in seiner gegenwärtigen Umwelt zu agieren. Indikatoren der Walkability haben also je nach Leistungsfähigkeit eine unterschiedliche Relevanz. Inwieweit die Leistungsfähigkeit bei der Beurteilung der Walkability zu berücksichtigen ist, ist noch nicht abschließend geklärt. In einem Expertenworkshop wurde der Indikatorensatz *Walkability im Alter* für verschiedene Leistungsfähigkeitsklassen bewertet.

Methods

Eingeladen wurden Expert_innen im Bereich der Altersforschung, die Indikatoren für drei verschiedene Leistungsfähigkeitsklassen bewerten. Die Klassen wurden nach dem Schema von Fried in „Non Frail“, „Pre-Frail“ und „Frail“ eingeteilt und in einem zweiten Schritt um die funktionale Kompetenz spezifiziert. Als Vorbild diente hier der LUCAS-Funktions-Index. Für jeden Walkability-Indikator wurde dann eine Bewertung für jede der drei Klassen abgeben, die Ergebnisse mit allen Expert_innen diskutiert und erneut zur Bewertung abgegeben. Ziel war, je nach Funktionsfähigkeit den Indikatorensatz neu zu bewerten.

Conclusions/Outlook

Im Workshop werden die Ergebnisse detaillierter vorgestellt und zur Diskussion gestellt. Ziel ist es, den Aspekt der Funktionsfähigkeit bei der Beurteilung der Walkability zu berücksichtigen und besonders bewegungsfördernde Elemente in der Umwelt zu identifizieren.

WS-04 | PLANT-BASED DIETS: MUCH-DEBATED, BUT UNDERSTUDIED

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Background:

While plant-based diets have become increasingly popular, media coverage and public perception are controversial, especially regarding veganism. The German Nutrition Society has published a rather critical position paper on veganism, with a focus on deficiency aspects. At the same time, there is lack of epidemiological studies on the prevalence, determinants and health consequences of plant-based diets.

Methods:

Excellent epidemiological studies have been launched in Germany very recently to address the vast research gaps on different health aspects of plant-based diets. These studies include the VeChi cohorts among vegan and vegetarian children and adolescents (FHM Bielefeld, IFANE/IFPE Gießen, University of Bonn) the NuEva Study, which aims to evaluate nutrient supply and metabolic effects of plant-based diets in comparison to animal-based diets in adults (University of Jena), and the cross-sectional "Risks and Benefits of a Vegan Diet" study (BfR Berlin). In our workshop, we will share findings from new projects in the field, with talks by principal investigators of ongoing studies and panel discussions.

Results:

With our workshop, we will support a more evidence-based approach to plant-based diets and veganism in particular, taking into account current initiatives, projects and challenges. Investigators involved in recent and ongoing studies will provide a comprehensive picture of the research landscape in Germany and worldwide. Research gaps as well as potential risks and benefits of plant-based diets will be identified and outlined with the participants.

Conclusion:

A workshop on the health consequences of plant-based diets is timely, given the large discrepancy between public interest and epidemiologic data. A comprehensive overview of the evidence will help to identify research and knowledge gaps, so as to enhance future collaborative studies, and to support evidence-based dietary recommendations as well as public health action on plant-based diets.

WS-05 | MODIFIABLE RISK FACTORS FOR COGNITIVE DECLINE AND DEMENTIA: EMERGING EPIDEMIOLOGICAL EVIDENCE FROM COHORT STUDIES

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The number of people living with dementia is rapidly increasing worldwide. Population ageing is a main driver of the increase. In Germany, the number is projected to almost double from 1.6 million people living with dementia today to up to 2.8 million by the year 2050.

The epidemiological situation is also the result of a lack of effective treatments for dementia, and despite enormous research efforts towards pharmacological solutions, medical breakthroughs are not on the horizon. Against this background, research and public health initiatives are increasingly focusing risk reduction strategies aiming at delaying or preventing the onset of cognitive decline and dementia.

Growing evidence highlights the potential for the prevention of cognitive decline and dementia particularly with regards to modifiable health and lifestyle factors for dementia. A set of twelve risk factors is repeatedly cited: education in early life, hearing loss, traumatic brain injury, hypertension, alcohol consumption above certain thresholds and obesity in midlife as well as smoking, depression, social isolation, physical inactivity, diabetes and air pollution in late life. It is estimated that 40% to 50% of all dementia cases could be prevented if these twelve risk factors were eliminated.

However, despite the growing evidence, there are many more questions to address: how do these risk factors relate to biomarkers of brain health? How to better differentiate risk factors with regards to certain age groups, sex and gender? What are determinants of risk factors for brain health? What other modifiable factors can be identified that are associated with cognitive decline and dementia? Emerging such factors could include anxiety, sleep and kidney diseases, for example.

In the workshop, we aim to bring to the table trending epidemiological evidence with regards to the latest developments in research on risk factors for brain health in ageing populations, focussing new results from the diverse working groups collecting and analysing data of cohort studies conducted in Germany and beyond within international collaborations.

WS-05-01

ZUSAMMENHANG ZWISCHEN EINEM INDEX SOZIALER DEPRIVATION UND KOGNITIVEM STATUS UND ABBAU BEI ÄLTEREN ERWACHSENEN

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Introduction

Soziale Deprivation, d. h. die relative Deprivation in sozioökonomischen Domänen, beeinflusst das Krankheitsrisiko. Weniger ist über den Zusammenhang mit der Kognition älterer Erwachsener (50+) bekannt.

Methods

Zunächst analysierten wir die Daten einer Teilstichprobe der US Health and Retirement Study (HRS). Eingeschlossen wurden 11.101 Teilnehmer*innen (M: 69,4 Jahre; SD: 8,6) mit 2+ kognitiven Untersuchungen (M Follow-Up: 11 Jahre; SD: 5,4). Mithilfe von Strukturgleichungsmodellierungen haben wir einen Index sozialer Deprivation (SDI) konstruiert. Durch Wachstumskurven wurde der Zusammenhang von SDI mit kognitivem Status und Abbau modelliert. Zur Validierung nutzen wir eine Teilstichprobe der Survey of Health, Ageing, and Retirement in Europe (SHARE) von 51.630 Teilnehmer*innen (M: 63,5 Jahre, SD: 9,1) mit 2+ kognitiven Untersuchungen (M Follow-Up: 6,06 Jahre; SD: 3,86). Zusätzlich führten wir eine Sensitivitätsanalyse durch, in der wir einen erweiterten SDI (SDI_{new}) konstruierten.

Results

Die erste Analyse der HRS-Teilstichprobe zeigte, dass, nach Adjustierung für Kovariate, der SDI negativ mit kognitivem Status assoziiert war. Darüber hinaus waren höhere SDI Scores mit einem schnelleren kognitiven Verfall verbunden. Dies bestätigte sich in der europäischen SHARE-Teilstichprobe. Die Ergebnisse der Sensitivitätsanalyse validiert die Ergebnisse. Im Vergleich zum SDI zeigte der SDI_{new} eine ausgeprägtere Assoziation sowohl mit kognitivem Status als auch mit kognitiven Abbau.

Conclusions/Outlook

Unsere Ergebnisse zeigen eine robuste Assoziation zwischen SDI Score und kognitivem Status sowie kognitivem Abbau. Wir schlussfolgern, dass eine Reduktion sozialer Deprivation die Kognition in der älteren Bevölkerung verbessern und das Auftreten von Demenz reduzieren würde. Frühzeitige Intervention wird entscheidend sein, um den kognitiven Status bereits vor Beginn eines altersbedingten Abbaus anzuheben.

WS-05-02

SOCIOECONOMIC INEQUALITIES IN COGNITIVE FUNCTION IN MIDLIFE AND EARLY LATE-LIFE ARE PARTIALLY ATTRIBUTABLE TO MODIFIABLE HEALTH AND LIFESTYLE FACTORS

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Introduction

There are socioeconomic inequalities in dementia risk. Growing evidence highlights the potential for dementia risk reduction through modifiable health and lifestyle factors. We aimed to investigate whether health and lifestyle factors play a mediating role in the association of socioeconomic inequalities and cognitive function.

Methods

The "LIfestyle for BRAin health" (LIBRA) score was computed for 6203 baseline participants of the LIFE-Adult study. LIBRA is a validated score that predicts dementia in midlife and early late life populations, consisting of 12 modifiable health and lifestyle factors for brain health. Socioeconomic status (SES; low/middle/high) was calculated based on education, net equivalence income, and occupational status. We used structural equation modelling to inspect potential mediation of the LIBRA score between SES and measures of cognitive function (Verbal Fluency Test/VFT; Trail Making Test/TMT). Analyses were adjusted for age, sex, marital status, living situation, employment, and social network.

Results

Participants were *M*=57.7 (*SD*=12.0, range: 40-79) years old and dementia-free; 50.7% were female. Individuals with low SES had higher LIBRA scores (indicating higher dementia risk) compared to individuals with middle SES and high SES, who had the lowest LIBRA scores (*M*=1.2, *SD*=2.3 vs. *M*=-0.4, *SD*=-2.6 vs. *M*=-1.2, *SD*=2.5; *F*(2)=271.8, *p*<.001). Cognitive function was lowest in individuals with low SES and highest in individuals with high SES. Bootstrapped mediation analysis indicated that 12.4% (VFT) to 22.8% (TMT) of the differences in cognitive function between low SES and high SES were significantly mediated by differences in LIBRA scores.

Conclusions/Outlook

Differences in cognitive function due to socioeconomic inequalities can be partially attributed to differences in modifiable health and lifestyle factors. Thus, promoting health and lifestyle changes in individuals with low SES could contribute to attenuate socioeconomic inequalities in cognitive function.

WS-05-03

SCHLAFCHARAKTERISTIKEN, GRAUE HIRNSUBSTANZ UND KOGNITIVE LEISTUNGSFÄHIGKEIT: ERGEBNISSE AUS DER BIDIRECT STUDIE

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Introduction

Schlaf ist bedeutsam für die Regulierung des Stoffwechsels und trägt zur Erholung des Körpers bei. Physiologische Schlafparameter lassen sich mittels polysomnographischer Verfahren analysieren, dennoch sind insbesondere die Zusammenhänge zwischen aggregierten Schlafparametern, Hirnstruktur und kognitiver Leistungsfähigkeit kaum untersucht.

Methods

190 Teilnehmer aus der populationsbasierten BiDirect Studie unterzogen sich einer Polysomnographie. Mit einer Hauptkomponentenanalyse wurden verschiedene Schlafparameter über ihre geteilte Varianz identifiziert und anschließend zu Hauptkomponenten aggregiert. Der Zusammenhang zwischen den einzelnen Hauptkomponenten und dem Volumen der grauen Hirnsubstanz wurde mit linearen Regressionsmodellen untersucht, ebenso wie der Zusammenhang mit kognitiver Leistungsfähigkeit.

Results

Insgesamt konnten drei Hauptkomponenten aus den polysomnographischen Daten identifiziert werden. Ausschließlich die erste Hauptkomponente, vorwiegend definiert durch Apnoen und kortikales Arousal, war signifikant assoziiert mit einem geringeren Volumen der grauen Hirnsubstanz im linken Frontalpol. Diese Hauptkomponente war außerdem mit geringerer Leistungsfähigkeit in den Domänen kognitive Flexibilität und selektive Aufmerksamkeit assoziiert.

Conclusions/Outlook

Die Beeinträchtigungen durch Apnoen und Arousal sowie die damit einhergehende niedrigere kognitive Leistungsfähigkeit und das geringere Volumen der grauen Hirnsubstanz zeigen die Relevanz von gesundem Schlaf.

WS-05-04

DO SELF-REPORTED HEARING AND VISUAL IMPAIRMENTS PREDICT DEMENTIA IN OLD AGE?

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Introduction

Dementia is one of the major challenges for health care systems around the globe today. Although some studies have shown a link between hearing loss and an increased risk for dementia, the contribution of other sensory impairments, such as vision problems, and how they interact in affecting dementia longitudinally is less clear. This analysis investigates the independent and interaction effects of hearing and visual impairment on the risk of dementia in older adults.

Methods

Data came from the AgeDifferent.de platform, which pooled individuals from two German old-age cohorts (LEILA75+, AgeCoDe/AgeQualiDe), spanning 20 years from 1997 to 2017 (N=3,497, mean age 79.8 years, 67.2% female). Self-reported hearing and visual impairment at baseline were assessed using standardized interviews and questionnaires. Incidence of all-cause dementia at follow-up was determined using a comprehensive cognitive test battery and validated through consensus diagnosis with geriatric experts. Competing risk regression models were used to test the effects of hearing and visual impairment on longitudinal dementia, adjusting for other established risk factors of dementia and accumulated mortality.

Results

At baseline, 30.3% of participants reported hearing impairment and 16.6% reported visual impairment. A total of 902 individuals (25.8%) developed dementia during follow-up. When adjusting for sociodemographics, cumulative mortality and other dementia-related risk factors, hearing impairment (subdistribution hazard ratio (sHR) 1.16, 95%-CI 1.04 – 1.30, p=.011) but not visual impairment (sHR 1.07, 95%-CI 0.90 – 1.28, p=.462) was significantly associated with incident dementia. No interaction between hearing and visual impairment was found.

Conclusions/Outlook

Self-reported hearing impairment is a key modifiable risk factor for dementia. There is no risk modification through the additional presence or absence of visual impairment. Dementia prevention strategies should include treatment of hearing impairment.

WS-06 | KINDERGESUNDHEIT ALS NACHHALTIGES ENTWICKLUNGSZIEL IN DER REGION WÜRZBURG: DIALOG ZWISCHEN FORSCHUNG UND PRAXIS

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Thema

Ein gesundes Leben für alle Menschen jeden Alters ist nicht nur eines der 2015 von den Vereinten Nationen verabschiedeten Nachhaltigkeitsziele, sondern auch mit den meisten der anderen 17 Nachhaltigkeitsziele verbunden (z.B. keine Armut, Klimaschutz, nachhaltige Städte und Gemeinden). Die Nachhaltigkeitsziele haben zum Ziel, auch zukünftigen Generationen ein gutes und gesundes Leben zu sichern und Kinder und deren Lebenswelten stehen im Zentrum vieler Nachhaltigkeitsziele.

Die epidemiologische Forschung zeigt: Interventionen im Kindesalter haben kurz-, mittel- und langfristige sowie intra- und intergenerationelle gesundheitliche Vorteile. Eine WHO-UNICEF-Lancet Kommission empfiehlt, Kinder in den Mittelpunkt alles politischen Handelns zu stellen und sektorübergreifende Maßnahmen zu entwickeln (Clark et al., 2020). Dies ist jedoch in Pandemiezeiten sehr in den Hintergrund gerückt. Wie können Maßnahmen vor Ort in Pandemiezeiten aussehen? Wie können alle Kinder bzw. ihre Lebenswelten erreicht werden? Welche Rollen spielen Ernährung und Bewegung? Welche Hürden sehen Entscheidungsträger*innen? Diesen Fragen zu Kindern in regionalen Nachhaltigkeitsstrategien möchten wir uns in diesem Workshop mit dem Fokus auf Würzburg und Umgebung stellen.

Inhalte/Lernziele

Aufbauend auf den Workshops zum Thema Nachhaltigkeit auf den DGEpi Jahrestagungen 2018 und 2019 wollen wir mit lokalen Vertreterinnen und Vertretern der Wissenschaft und Politik diskutieren, wie und wo die epidemiologische Forschung zur Umsetzung und Sichtbarmachung der Nachhaltigkeitsziele beitragen kann.

Die Teilnehmenden werden mit den Nachhaltigkeitszielen mit Fokus auf dem Themenfeld Kinder vertraut. Der Schwerpunkt des Workshops ist, wie kindliches Wohlergehen erfolgreich in regionale Nachhaltigkeitsstrategien integriert wird und welche Rolle die Wissenschaft dabei spielen kann. Der Austausch mit lokalen Entscheidungsträger*innen stärkt die Vernetzung von Wissenschaft und Praxis. Darüber hinaus kann eine Einschätzung dazu erlangt werden, wie das Thema Nachhaltige Entwicklung noch weiter in der DGEpi verankert werden kann und welche Themen hier als besonders dringend erachtet werden.

Methode

Wir starten mit einer Short-Hot-Fire Thesendiskussion, gefolgt von zwei bis drei Impulsvorträgen aus Forschung und Praxis. Anschließend werden die vorgestellten Best Praxis Beispiele im Rahmen eines wissenschaftlichen „Speed-Datings“ hinsichtlich möglicher Synergieeffekte und Wissenslücken diskutiert.

WS-07 | WORK IN PROGRESS AND LATE-BREAKING CONTRIBUTIONS FROM THE FIELD OF METHODS AND STATISTICS IN CLINICAL AND EPIDEMIOLOGICAL STUDIES

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This workshop of the working groups “Epidemiological Methods” (AG 4) and “Statistical Methods in Epidemiology” (AG 9) offers scientists and research groups from different institutions the opportunity to present work in progress and late-breaking contributions from the field of methods and statistics in clinical and epidemiological studies to gain input for further work from the discussion. Abstracts can be submitted from the following topics: methods and statistics for planning, conducting and evaluating clinical and epidemiological studies; methodological aspects in epidemiology (bias, confounding, causality); development and validation of survey methods; data protection and data security; data exchange; implementation of processes in studies and quality management; reporting quality; methodological aspects of special types of data (e.g. secondary data, data linkage, citizen data). Methodological and statistical contributions from other DGEpi working groups may also be submitted for the workshop

WS-08 | INTRODUCTION OF DATAQUIER – AN R PACKAGE TO CONDUCT FRAMEWORK-BASED DATA QUALITY ASSESSMENTS IN EPIDEMIOLOGICAL RESEARCH

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A recent framework for data quality assessment of observational studies proposes the examination of four data quality dimensions: integrity, completeness, consistency, and accuracy [1]. *dataquieR* is an R package that accompanies this theoretical approach and is available from the Comprehensive R Archive Network (CRAN) [2].

In this workshop, after a brief introduction into the data quality concept, we will introduce the different functions of *dataquieR* related to the data quality dimensions integrity, completeness, consistency, and accuracy. Real-world data of the Study of Health in Pomerania will be used to generate data quality assessments. We will start with a standard report for the latter which only requires a two-line command of the *dataquieR* function dq_report(). We then extend the report by providing more metadata to the R functions. In this manner, we will also shed some light on defining data quality requirements in common spreadsheet tables.

In addition, participants will be familiarized with the website that accompanies *dataquieR* and provides annotated vignettes as well as video tutorials for the use of *dataquieR*.

[1] Schmidt, CO., Struckmann, S., Enzenbach, C., Reineke, A., Stausberg, J., Damerow, S., Huebner, M., Schmitt, B., Sauerbrei, W., & Richter, A. (2020). Facilitating harmonized data quality assessments. A data quality framework for observational health research data collections with software implementations in R. Research Square. https://doi.org/10.21203/rs.3.rs-119457/v1

[2] Richter, A., Schmidt, C.O., Struckmann, S. (2021). dataquieR: Data Quality in Epidemiological Research. R package version 1.0.5.9007. https://CRAN.R-project.org/package=dataquieR

WS-08-01

HANDS ON DATA QUALITY – APPLIED INTRODUCTION INTO A DATA QUALITY FRAMEWORK FOR DATA COLLECTIONS IN OBSERVATIONAL HEALTH RESEARCH

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Introduction

Data quality is a complex construct with potential ambiguities as to its application to real data sets. This talk therefore provides an applied introduction to a recently published data quality framework for data collections in observational health research (https://doi.org/10.1186/s12874-021-01252-7). The framework comprises four data quality dimensions with 34 data quality indicators.

Methods

In this theoretical part of the workshop, participants are guided through the four steps of a data quality assessment, covering the dimensions integrity, completeness, consistency, and accuracy in preparation of the subsequent use of dataquieR. This will be done with reference to a dataset taken from the Study of Health in Pomerania (SHIP). The presentation will make use of a dedicated web-page on data quality assessments (https://dfg-qa.ship-med.uni-greifswald.de/).

Results

This introduction to the framework provides a better understanding on aspects of relevance during the conduct of data quality assessments and on how the adequate sequence of addressed data quality indicators helps to avoid spurious results.

Conclusions/Outlook

Applying the framework in a consistent way will facilitate the efficient assessment of the data quality of some data body by systematically addressing a wide range of potential deficiencies. Understanding the framework is important to make appropriate use of tools like dataquieR.

WS-08-02

HANDS ON *DATAQUIER* – DATA QUALITY ASSESSMENTS IN OBSERVATIONAL HEALTH RESEARCH DATA COLLECTIONS MADE EASY

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Introduction

The R package dataquieR is available from the comprehensive R archive network (CRAN). It was designed to ease the application of a recently published data quality assessment framework for designed research data collections (Schmidt et al. 2021, 10.1186/s12874-021-01252-7).

Methods

In this workshop participants are guided through the installation of dataquieR, the different data sources attached to the package, and two different application pipelines. Theoretical aspects of the assessment of integrity, completeness, consistency, and accuracy will be linked to different implementation forms in dataquieR. Reading data from external sources will be exemplified and suitable metadata will be defined in a dataquieR compatible format.

Results

The workshop enables participants to run dataquieR on their own data, to create a dataquieR standard report, and to adjust the report to specific requirements. Also, a slim report will be drafted based on the R-package rmarkdown, that calls the data quality indicator functions directly.

Conclusions/Outlook

Using dataquieR, data quality reporting becomes easier and more standardized. Still, setting up metadata is a challenging and yet tedious work. Future workshops will address tools currently under development to easily edit and share such metadata with other studies, thereby reducing the costs of metadata setup and increasing the comparability of data quality reports from different sources.

WS-09 | EPIDEMIOLOGIE IM NEUEN CURRICULUM HUMANMEDIZIN: CHANCEN UND HERAUSFORDERUNGEN DURCH DIE ANSTEHENDEN ÄNDERUNGEN IN APPROBATIONSORDNUNG (AO), NATIONALEM KOMPETENZBASIERTEN LERNZIELKATALOG MEDIZIN (NKLM) UND GEGENSTANDSKATALOG (GK)

Timmer A.

Hintergrund: Basierend auf dem Masterplan Medizinstudium 2020 wurden der NKLM überarbeitet und Prüfungsgegenstände für die Staatsexamina festgelegt. Der NKLM wird Bestandteil der neuen AO werden und somit für die Fakultäten verbindlich Lehr- und Prüfungsgegenstände festlegen. Epidemiologie ist durch die teils sehr grundlegenden Änderungen in vielerlei Hinsicht betroffen. So stellen die erhöhte Bedeutung von Prävention und Public Health, die Einführung eines verbindlichen Wissenschaftspfades einschließlich Ausweitung von Lernzielen zur evidenzbasierten Medizin und die konsequente interdisziplinäre Aufstellung insgesamt eine Stärkung epidemiologischer Methoden und Inhalte dar. Gleichzeitig zieht die erhöhte Komplexität des Kataloges und die nun noch konsequentere Auflösung klarer Zuordnungen von Lerninhalten zu Fächern und Studienabschnitten zugunsten von Absolventenprofilen gerade für ein so interdisziplinär arbeitendes Fach wie die Epidemiologie besondere Herausforderungen an die Orientierung und Identifikation relevanter Ziele und notwendiger Lehrkooperationen.

Der Workshop verfolgt das Ziel, die wesentlichen Änderungen und die ihnen zugrundeliegenden Konzepte vorzustellen. Den TeilnehmerInnen soll die Möglichkeit geboten werden, eigene Ideen und Erfahrungen zur Umsetzung neuer oder bewährter integrativer Lehrkonzepte zu diskutieren und mit sich mit Vertretern der Curriculumsentwicklung Medizin auszutauschen.

ReferentInnen: Martin Fischer, Institut für Didaktik und Ausbildungsforschung in der Medizin, Klinikum der LMU, München.

Ute Teichert, Akademie für Öffentliches Gesundheitswesen in Düsseldorf, Bundesverband der Ärztinnen und Ärzte des Öffentlichen Gesundheitsdienstes e.V.

WS-09-01

EPIDEMIOLOGIE IM NEUEN CURRICULUM HUMANMEDIZIN: CHANCEN UND HERAUSFORDERUNGEN DURCH DIE ANSTEHENDEN AO, NKLM UND GK

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Hintergrund: Basierend auf dem Masterplan Medizinstudium 2020 wurden der NKLM überarbeitet und Prüfungsgegenstände für die Staatsexamina empfohlen. Der NKLM wird Bestandteil der neuen AO werden und somit für die Fakultäten verbindlich Lehr- und mittelbar auch Prüfungsgegenstände festlegen. Epidemiologie ist durch die teils sehr grundlegenden Änderungen in vielerlei Hinsicht betroffen. So stellen die erhöhte Bedeutung von Prävention und Public Health, die Einführung eines verbindlichen Wissenschaftspfades einschließlich Ausweitung von Lernzielen zur evidenzbasierten Medizin und die konsequente interdisziplinäre Aufstellung insgesamt eine Stärkung epidemiologischer Methoden und Inhalte dar. Gleichzeitig zieht die erhöhte Komplexität des Kataloges und die nun noch konsequentere Auflösung klarer Zuordnungen von Lerninhalten zu Fächern und Studienabschnitten zugunsten von Absolventenprofilen gerade für ein so interdisziplinär arbeitendes Fach wie die Epidemiologie besondere Herausforderungen bezüglich der Identifikation relevanter Ziele und notwendiger Lehrkooperationen. Der Workshop verfolgt das Ziel, die wesentlichen Änderungen und die ihnen zugrundeliegenden Konzepte vorzustellen. Im ersten Teil des Workshops werden Impulsvorträgen relevante Aspekte aus Medizindidaktik und Prüfungsorganisation vorgestellt. Zudem werden die besonders epidemiologie-relevanten Kompetenzbereiche Prävention/Gesundheitsförderung und Wissenschaft (Forschung & evidenzbasierte Medizin) erläutert.

WS-10 | EPIDEMIOLOGY OF SARS-COV-2 IN CHILDREN AND ADOLESCENTS

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Knowledge about the epidemiology of the severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2) in children and adolescents rapidly accumulates as the coronavirus disease 2019 (COVID-19) pandemic progresses. The clinical appearance of COVID-19 in children and adolescents is heterogeneous. While most young people with SARS-CoV-2 infections are asymptomatic or have mild respiratory symptoms requiring no treatment or only supportive care, a small number of children and adolescents develop a life-threatening multisystem inflammatory syndrome (MIS-C). In contrast to studies conducted during the first months of the pandemic suggesting that children and adolescents are unlikely the main drivers of the pandemic, recent studies highlight the fact that young people are transmitting SARS-CoV-2 to varying extents. Despite rapidly accumulating evidence, much remains to be learned about, inter alia, the clinical appearance of COVID-19 in young people, long-term sequelae of mostly oligosymptomatic or asymptomatic infections, or the contribution of children and adolescents to outbreaks as more transmissible variants of SARS-CoV-2 emerge.

The workshop provides a platform for presenting and discussing new research findings on the epidemiology of SARS-CoV-2 in children and adolescents. A keynote presentation summarizing the current evidence on the epidemiology of SARS-CoV-2 infections in young people will be followed by 3 – 4 presentations reporting on new findings from Germany or abroad. The presentations will cover diverse aspects of the epidemiology of SARS-CoV-2 in children and adolescents.

WS-10-01

COVID-19 DURING FIRST WAVE IN HAMBURG-EIMSBÜTTEL: PAEDIATRIC CASES, FAMILIAL CLUSTERS AND DIRECTION OF TRANSMISSION- AN ANALYSIS OF HEALTH OFFICE DATA FOR THE PERIOD 1ST MARCH TO 16TH MAY, 2020

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Introduction

To better understand the progression of COVID-19 disease in children and the role of both symptomatic and asymptomatic children in the transmission of SARS-CoV-2 within the households, data from SARS-CoV-2-positive paediatric cases (n = 46) and their positive adult family members (n = 56) were analysed (test method: SARS-CoV-2 RT-PCR). The paediatric (n = 46) as well as adult cases (n = 56) that tested positive were reported to the Hamburg-Eimsbüttel health office between 1st March and 16th May, 2020, and thus during the first wave of infection of the SARS-CoV- 2 pandemic. During this period, schools and kindergartens nationwide were predominantly closed.

Methods

The data was collected from the respective case files, and cleaned by means of a plausibility check. For the analysis and comparison of the different variables in adults and children, cross-tabulations were used and a descriptive analysis was performed. For the in-depth analysis of transmissions in the household, timelines were created that showed the date of symptom onset and recovery for COVID-19 cases in families.

Results

The results show that the majority of cases occurred in children and adolescents in the age group 10 to 17 years. Furthermore, result for age group-dependent infection rates shows that kindergarten-aged children were less susceptible to COVID-19 compared to school-aged and day-care children. Most children (0 - 17 years) had a travel history along with their family members. When ill, both children and adults reported fever, cough, or headache and limb pain as the most common symptoms. The proportion of adults who had at least one of these symptoms was higher than for children. Nearly one-fifth of children (9/46) were asymptomatic. Children showed a milder course of illness and the majority did not represent the primary case in the household.

Conclusions/Outlook

The data submitted to district health offices are useful in further describing the natural history of the disease and factors contributing to SARS-CoV-2 transmission.

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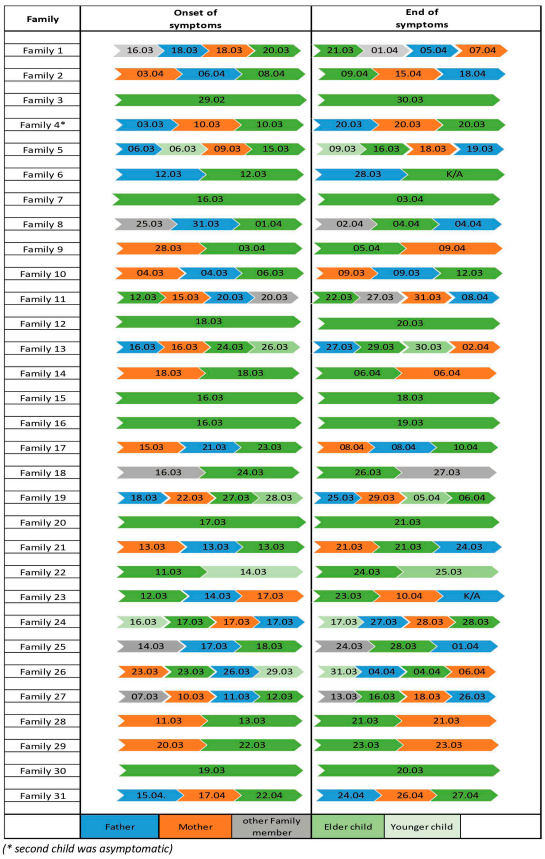

(second child was asymptomatic)*

Timeline for 31 households
These begin with the onset of COVID-19 symptoms for the primary case and end with the recovery date of the last symptomatic family member as a close household contact. Each timeline is color-coded to represent the family members who were infected at a given time. The timeline is divided into two sections. The left section shows the onset of the first symptoms of each family member who tested positive, and the right section shows the sequence of recovery of each family member who tested positive. Here, other family members (gray) are either the siblings older than 18 years or the grandparents

Epidemiological data	Children Number, %	Adults Number, %
Overall	**46 (45)**	**56 (55)**
Female	16 (34.8)	25 (44.6)
Male	30 (65.2)	31 (55.3)
Age, median (SD, range)	13 (5.2, 0 bis 17)	48.5 (14.3, 18 bis 85)
Travel History	33 (71.7)	33 (58.9)
Family member was Index case	12 (26)	14 (25)
School/Kindergarten	1 (2.2)	…
Work place or other place	…	9 (16.1)
Symptoms*		
Cough	20 (43.5)	35 (62.5)
Diarrhea	2 (4.3)	6 (10.7)
Fever	26 (56.5)	38 (67.9)
Headache and/or joint pain	15 (32.6)	30 (53.6)
Loss of taste and/or smell	4 (8.7)	15 (26.8)
Running nose	13 (28.2)	17 (30.3)
Sore throat	10 (21.7)	18 (32.1)
Stomachache	5 (10.9)	2 (3.6)
Weakness	3 (6.5)	8 (14.2)
Nausea & vomiting	4 (8.7)	4 (7.1)
Dyspnea	4 (8.7)	4 (7.1)
Loss of appetite	1 (2.2)	2 (3.6)
Shivering	1 (2.2)	6 (10.7)
General illness	7 (15.2)	9 (16.1)
Asymptomatic	9 (19.6)	0 (0)
Hospitalization	0 (0)	3 (5.4)

*(*For the calculation of the percentage of symptoms and signs of illness, the total number 54 was used for adults)*

Epidemiologic and clinical characteristics of SARS-CoV-2-positive paediatric and adult cases
The following table shows the epidemiologic and clinical characteristics of SARS-CoV-2-positive paediatric and adult cases in the familial household reported in the district Hamburg-Eimsbüttel between March 1st and May 16th, 2020.

WS-10-02

COVID-19 TRANSMISSION IN EDUCATIONAL INSTITUTIONS AUGUST 2020 TO MARCH 2021 IN RHINELAND-PALATINATE: A STUDY OF INDEX CASES AND CLOSE CONTACT COHORTS

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Introduction

The lack of precise estimates on transmission risk hampers rational decisions on the opening of educational institutions during the COVID-19 pandemic.

Methods

Data were obtained from mandatory notification of SARS-CoV-2 index cases in educational institutions and information on routine contact tracing and PCR-testing. We used average number of secondary cases and negative binomial regression to operationalise transmission risk and to test for differences between groups.

Results

We analysed data from 1.211 index cases and close contacts within the educational setting. The estimated proportion of PCR-testing among close contacts (including asymptomatic) was 90%. The average number of secondary cases for 361 SARS-CoV-2 index cases in day-care centres was 1.4, but increased in the light of the variants of concern (VoC) between 2020 and 2021 by 90% from 1.0 to 1.9, mainly due to the larger average outbreak size (3.4 vs. 5.9 cases) (figure 1, figure 2). The mean number of secondary cases was significantly larger if the index case was a day-care teacher as compared to a child (incidence risk ratio 1.85 (95%CI 1.07-3.21)).Among the 789 index cases in schools (647 in 2020 and 142 in 2021), we did not observe an increase in transmission risk over time (0.20 vs. 0.15 secondary cases per index case). In 2021, there were on average more secondary cases among the 75 index cases caused by the British VoC (0.17) compared to the 29 index cases with wildtype infection (0.07).

Conclusions/Outlook

In Rhineland-Palatinate, SARS-CoV-2 transmission risk in day-care centres varies profoundly from that in schools. VoCs strongly affected transmission risk in day-care centres, but not in schools, most likely due to the increase in hygiene measures (face masks, reduced class sizes) in schools, but not in day-care, in 2021. Vaccination and additional hygiene measures targeting the day-care setting are priorities in reducing the burden of infection in educational institutions and may promote educational justice during the pandemic.

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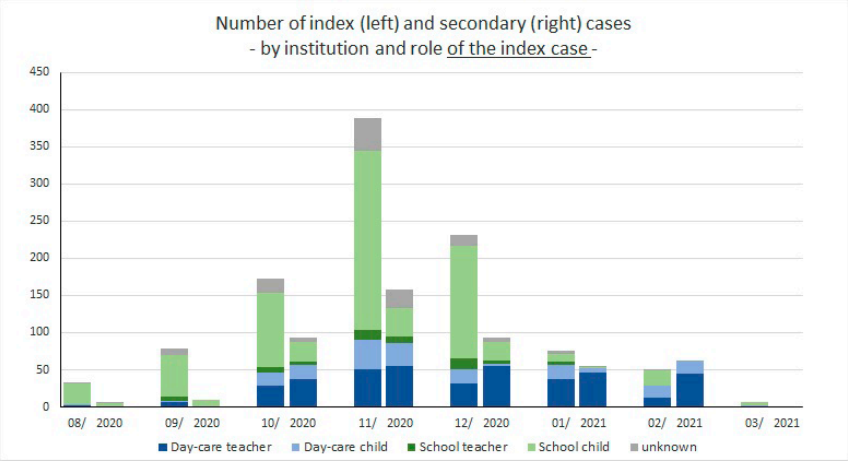

Figure 1
Absolute number of included index cases (left bars) and the resulting secondary cases (right bars), both by institution and role of the index case, over time.

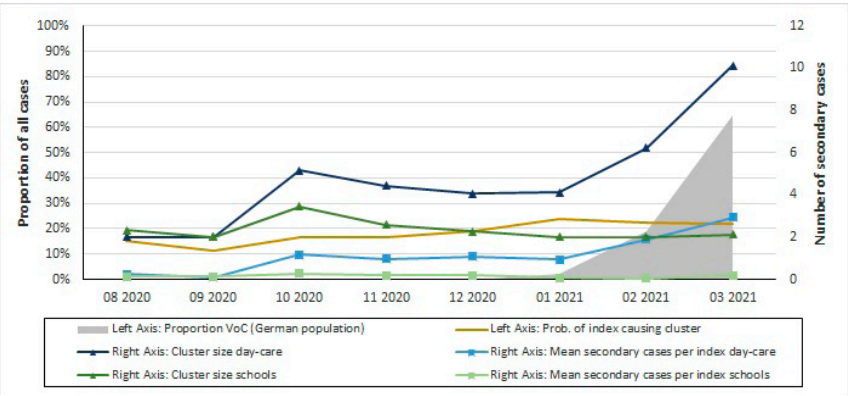

Figure 2
Left axis: probability of causing at least one secondary case (light brown line) and the estimated proportion of variants of concern (VoC) for Germany (grey area) (https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/DESH/Bericht_VOC_2021-03-31.pdf?__blob=publicationFile).

Right axis: average number of secondary cases per index case (light colours) and the average outbreak size (dark colours).

WS-11 | CAUSAL INFERENCE AND TARGET TRIALS FOR EPIDEMIOLOGY

Schink T.[1], Didelez V.[2], Siebert U.[3,4], on behalf of the AG 11 Pharmacoepidemiology and Horizontal Initiative Causal Inference. Endorsed by AG 4 Epidemiologic Methods and AG 9 Statistical Methods in Epidemiology.

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Many if not most research questions in epidemiology are about a causal effect of some exposure/intervention on a health outcome. Causal inference addresses this with suitable methods that can be shown to estimate the desired causal effect under explicit structural assumptions, such as no-unmeasured-confounding. However, in recent years it has become increasingly clear that it is even more fundamental to begin with a well-formulated and delimited causal research question especially with view to avoiding avoidable biases in addition to confounding; this is often not self-evident, especially (but not only) when working with secondary data sources, such as health care claims data. Formulating and justifying the causal estimand, and more generally describing the research questions by means of a "target trial", which the analysis aims to emulate, are of crucial importance. Here, a "target trial" refers to a hypothetical ideal trial one would carry out to answer the research question, but which for time, financial, ethical, practical or other reasons cannot be done. The workshop will introduce the key concepts and illustrate the main issues as well as possible solutions with examples from pharmacoepidemiology, oncology and real world evidence. The scope of the workshop ranges from risk assessment, prevention, screening to treatment and covers different study designs and statistical methods.

4 invited presentations à 20 min plus 10 min direct questions (Chairs: Tania Schink & Uwe Siebert):

1) Ellen Caniglia (NYU, New York City, USA): "Emulating a target trial of statin use and risk of dementia using cohort data"

2) Malte Braitmaier (BIPS, Bremen, Germany): "Effectiveness of screening colonoscopy in reducing colorectal cancer incidence: emulated target trials from German claims data"

3) Barbra Dickerman (Harvard T.H. Chan School of Public Health, Boston, USA): "Emulating a target trial in case-control designs: an application to statins and colorectal cancer"

4) Felicitas Kühne (UMIT, Hall i. T., Austria): "Using target trial emulation to gain trust in observational studies based on real-world data - an application to ovarian cancer treatment"

Panel discussion: Consequences for future work in causal epidemiology – inside DGEpi and on the interface with international partners (discussants: Vanessa Didelez, Uwe Siebert and invited speakers)