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Book of Abstracts

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Differential effects of adolescent health behaviors on adult cardiometabolic conditions by parental financial situation: a population-based cohort study

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Background: Health behaviors in adolescence have a long-term effect on cardiometabolic health and could differ by parental socioeconomic situation. If the detrimental effects of unhealthy behaviors were larger among socioeconomically disadvantaged adolescents than among their socioeconomically advantaged peers, whole-population interventions could mitigate health inequalities. Adopting a life course perspective and a causal inference framework, we aimed to quantify the differential effect of adolescent unhealthy behaviors on adult cardiometabolic conditions by parental financial situation.

Methods: Using the National Longitudinal Study of Adolescent to Adult Health in the United States (n=4,452), we i) assessed clustering of behaviors via latent-class modeling and ii) estimated conditional causal effect by parental financial situation through double-robust estimators. Exposures were adolescent unhealthy behaviors (breakfast skipping, cigarette smoking, alcohol consumption and insufficient physical activity) and the effect modifier was parental financial situation (difficulty paying bills vs. no difficulty), both measured at ages 12 – 19 (1994 – 1995). Outcomes were cardiometabolic conditions (cardiovascular: hypertension, stroke, and cardiac failure; metabolic: diabetes and chronic kidney disease), measured at ages 33 – 43 (2016 – 2018) using biomarkers and self-reports.

Results: After 21 years of follow-up, 33% of participants had cardiometabolic conditions (n=1,478, 404 metabolic). Smoking and alcohol consumption clustered. Joint smoking and alcohol consumption among adolescents with parental financial difficulty led to 189 more cardiometabolic cases (95% confidence interval (CI): 25 – 354) compared to joint smoking and alcohol consumption by their peers without financial difficulty. Breakfast skipping among adolescents with parental financial difficulty led to 35 more metabolic cases (95% CI: 8 – 62) compared to breakfast skipping by their peers without financial difficulty. There were no differential effects of insufficient physical activity on adult cardiometabolic conditions.

Conclusion: Adolescent unhealthy behaviors increase the risk of adult cardiometabolic conditions unequally. Public health initiatives addressing unhealthy behaviors during adolescence could mitigate socioeconomic inequalities in adult cardiometabolic conditions.

Long-term development in job crafting in employees with and without mental health issues during COVID-19: The role of job resources

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The prevalence of mental health issues (MHIs), encompassing mental disorders, distress, and the absence of well-being, poses a significant societal challenge. The COVID-19 pandemic has intensified psychological pressure on the entire population, raising the question of how individuals with MHIs can remain engaged and productive at work, especially during and after a crisis like the COVID-19 pandemic. One crucial work-related concept that can lead to positive outcomes in the workplace is job crafting. Job crafting involves self-initiated, proactive strategies to modify job characteristics, aiming for a better fit between individual needs and job characteristics.

This study aimed to investigate the long-term development of job crafting during the COVID-19 pandemic among employees with and without MHIs. Additionally, the study explored the role of job resources in these changes. Longitudinal panel data from six waves between 2019 (used as the pre-pandemic baseline) and 2022 were analyzed, encompassing 1,405 employees (including 108 employees with MHIs) from Switzerland, Germany, and Austria.

Hierarchical linear modeling revealed change differences in job crafting: employees with MHIs experienced a decrease in job crafting during the COVID-19 pandemic compared to employees without MHIs. However, job resources buffered this decrease among employees with MHIs.

These findings suggest that strengthening job resources can help employees with MHIs maintain their job crafting behavior, ensuring they can continue to shape their work according to their needs in the post-pandemic era.

Precautionary Fertility: Conceptions, Births, and Abortions around Employment Shocks

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We study fertility responses to employment shocks using unique Hungarian administrative data linking firm-level mass layoff and closure events to individual-level birth and abortion records. We show that the main fertility response occurs in anticipation and differs by shock type. In the year leading up to a mass layoff conceptions resulting in births increase while conceptions in the year before a closure are more likely to end with abortions. We interpret this result as evidence of precautionary fertility behavior: women schedule childbirth to avoid future job loss, a strategy that is only feasible if the firm survives the crisis.

Polygenic risk for number of births is moderated by education achievement

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Previous studies have shown a negative correlation between education and fertility rates, yet these studies often overlook the genetic influences on fertility. Utilizing data from the Health and Retirement Study (HRS) involving 102,759 adults aged 50 and above, this research examines the impact of genetic risk scores and educational attainment on fertility. Multilevel regression model reveals significant associations between fertility genetic risk scores (PGS) and educational attainment with fertility, along with a notable interaction effect between the two. In a further analysis, we replaced fertility with childlessness and multiple births as dependent variables, defining PGS higher than 1.5 standard deviations above the mean as high PGS and those below 1.5 standard deviations as low PGS. Our findings indicate that low PGS is positively associated with childlessness and negatively associated with having multiple children. However, as educational attainment increases, the rate of childlessness in individuals with low PGS decreases, while the rate of having multiple children increases. Conversely, high PGS is negatively associated with childlessness and positively associated with having multiple children; as educational attainment rises, the rate of having multiple children decreases in individuals with high PGS. The results suggest that PGS and educational attainment interact significantly. Education mitigates the impact of PGS on fertility: for individuals with high PGS, higher education levels are associated with lower fertility; for those with low PGS, higher education levels are associated with higher fertility. The study implies that education suppresses the genetic influence on reproductive behavior, positioning education as a crucial mechanism for adjusting population growth.

Longitudinal Dynamics of Occupational Well-being: Exploring Associations with Socio-economic Factors in Swiss and German Employees

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Occupational well-being has become a critical indicator of employee health and productivity (Van Horn et al., 2004). Key dimensions of occupational well-being include work engagement and burnout (Bakker et al., 2023; Bakker & Demerouti, 2017; Demerouti et al., 2001). Burnout is described as a work-related state of exhaustion (Schaufeli & Greenglass, 2001), whereas work engagement is a motivational state characterized by vigor, dedication, and absorption (Bakker et al., 2008). The COVID-19 pandemic has significantly impacted work environments, introducing new stressors and altering routines, thereby affecting occupational well-being (Kaltainen & Hakanen, 2022; Oksa et al., 2023).

The study investigates longitudinal dynamics in work engagement and exhaustion among Swiss and German employees during and after the COVID-19 pandemic. Additionally, it examines how socio-demographic factors (e.g., gender, country, age, living situation, education) are linked to changes in occupational well-being. The study is based on four waves of longitudinal survey data collected between April 2020 and December 2021 (N = 2137). We employed latent change score analysis to examine longitudinal changes over time and across employee groups.

The results indicate significant fluctuations in work engagement and exhaustion across the four waves, with notable differences between employee groups. Specifically, we found that certain socio-demographic factors such as country, age, or living situation had a pronounced effect on these fluctuations. Our findings contribute to understanding the dynamic nature of occupational well-being in response to major disruptions like the COVID-19 pandemic. Results will be presented in as plots and tables highlighting the main findings which will be discussed in the context of the COVID-19 pandemic and employees' characteristics. The study underscores the importance of considering contextual and socio-demographic variables when addressing occupational well-being.

Which norms determine acceptance for use of assisted reproduction technologies for heterosexual couples?

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Innovations in assisted reproduction technologies (ART) are growing rapidly. While this means that people who experience difficulties having children have more possibilities than ever before, this has led to controversial public debates on who should have access to these new technologies and receive financial support for their implementation.

Focusing on heterosexual couples, we test for differences in the acceptance of ART for different couples using a factorial survey experiment. Survey experiments allow us to measure the independent effects of multiple factors influencing people's assessments regarding access to ART simultaneously while minimizing the problem of social desirability bias. The couples in the vignettes are described as belonging to different age groups and wanting access to different methods of assisted reproduction. Furthermore, information on their civil status, the duration of their relationship, whether they already have a child or children, their income, education and the respective number of working days of each parent is provided. Respondents are then asked to what extent they would agree to them becoming parents by using a specific ART and what percentage of the costs they should take on themselves as opposed to insurance.

The survey experiments were embedded in a nationally representative survey conducted in Switzerland in early 2023. The results show that people judge the worthiness of intended parents differently depending on their age, the method of assisted reproduction they seek to use, their civil status, financial situation as well as whether they already have children and how much they plan to work after the birth of the child. The results provide valuable insight into the social norms that govern our perceptions of good/worthy parents.

Can celebrities reduce ethnic discrimination? A field experiment in a social setting

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Interventions to reduce ethnic discrimination are rarely tested. In this study, we conduct a field experiment to test the effect of a celebrity-endorsed information campaign in a setting where discrimination was previously observed. A random selection of about 500 amateur soccer coaches received an email with a link to a two-minute video. In this video, two famous professional Swiss soccer players directly address coaches with a pro-diversity message, reminding them to be open to all interested players. Two weeks later, we sent fictitious applications to 1,116 coaches asking to join one training session with the team. We use typical native- and foreign-sounding names and compare the responses from coaches in the treatment and control groups. Unique identifiers in the video hosting platform allow detecting coaches who watched the video. We estimate several probit models to evaluate the impact of the intervention. While the email did not influence coaches in the treatment group, the coaches who watched the video are 11 percent more likely to respond positively to the applicants. The findings are robust to several specifications, including team characteristics, municipality-level information, and video retention metrics. Much research is needed to develop anti-discrimination policies and test their effectiveness in the field.

Partner's Education and Smoking: The Role of Selection

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The educational gradients in smoking and in mortality attributable to smoking-related diseases are well-documented. A broader perspective on the impact of education on health and health behavior also considers spillover effects of spouses' educational attainment net of one's own educational attainment. Previous research that focused on smoking-related outcomes suggest that higher educational attainment of the spouse is associated with lower probability of smoking. However, part of the association between a spouse's education and current smoking behavior may be attributed to selection mechanisms, which are currently underexplored in the literature. Using data from UK Household Longitudinal Study (UKHLS) in United Kingdom, this paper aims at disentangling the role of selection in this association by using information on teenage smoking habits. First, we assess whether married people who smoked as a teenager were more likely than their counterparts who did not smoke as a teenager to have a spouse with lower educational attainment using a multinomial logistic regression. Second, we estimate whether teenage smoking can be a (partial) confounder of the effects of educational attainment of one's spouse on smoking using Karlson, Holm and Breen's (KHB) decomposition. First, results show that smoking as teenager reduces the likelihood of marrying a highly educated individual especially among women. Second, KHB decomposition indicates a significant reduction in the size of the association between partner's education and smoking suggesting an important role of selection mechanisms in this association among women. However, this association remains significant after controlling for teenage smoking habits indicating an independent association between spouse's education and current smoking net of selection mechanisms. This study is the first to highlight a potential alternative mechanism and serves as an initial step toward a better understanding of the role of selection in examining the spillover effects of a partner's education on health.

Population research in vulnerable populations: how can we reach those at high-risk of stigmatized health outcomes?

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Background: Reaching high-risk populations remains challenging for health research and prevention. This is particularly true for populations at high-risk of stigmatized health outcomes, such as substance use, HIV, sexually transmitted infections, and mental health.

Methods: We conducted research among (i) sexual minorities (longitudinal SwissPrEPared study/program, Real Risks study, Grindr study), (ii) sex workers (longitudinal Nightcafe study/program), (iii) emerging adults (cross-sectional Real Risks study), and (iv) young and low-income people in need of sexual counseling and testing in Zurich (cross-sectional teSTI study) between 2019 and 2024. All projects followed the concept of Human Centered Design, including community involvement in all steps of the study process, but followed different enrollment strategies.

Results: The success of varying recruitment strategies depended on the target population. As of June 1, 2024, 7,292 people (88% of program participants) were enrolled in the SwissPrEPared study with at least one visit. As of December 31, 2023, 55 sex workers (56% of program participants) enrolled in the Nightcafe study. The Real Risks study enrolled 229 HIV-negative men-having-sex-with-men (MSM) seeking counseling for HIV pre-exposure prophylaxis (PrEP; longitudinally over six months), 969 students of the University Zurich, and 34 MSM living with HIV. The Grindr study enrolled 279 MSM from online dating apps. Of the 3,475 people who came for free testing as part of the teSTI program, 2,866 (83%) agreed to share their data and 719 (21%) completed a follow-up questionnaire.

Conclusion: Working closely with community members and organizations is key for reaching vulnerable populations. Developing study designs that match the life reality of the studied populations result in high study participation rates. Completion rates of surveys were improved when participants saw a direct benefit (i.e., improved medical care). Targeted social media is less effective than working with trusted community members for recruitment.

The crisis in youth wellbeing – is it due to the COVID-19 pandemic?

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Our project, the Covid Generation, aims to understand how the Covid-19 pandemic affected young people's wellbeing in Switzerland. We will present the overview of the key findings one-and-a-half year into the project. First, we will describe how wellbeing among young people has been changing over the period of pre-, during and post-pandemic – spanning 2017-2022. Second, we will report the extent to which pandemic-related worries and psychosomatic symptoms were associated with wellbeing up to 2.5 years post-pandemic. We used longitudinal data from the Swiss Household Panel, a large national household survey – with over 10.000 participants, including nearly 1500 people aged 14-25 years-old. In addition to annual data collection, there was a pandemic-oriented wave in May-June 2020.

We found that young people, aged 14-25, experienced a steady decline in wellbeing throughout the entire period of 2017-2022, including positive affect and life satisfaction, negative affect, stress and psychosomatic symptoms. These trends were more adverse among young people than other age groups, with young women being particularly vulnerable. However, the trends were not universal across these indicators. 18.5% experienced pandemic-associated psychosomatic symptoms for at least 1-2 days. Those who reported symptoms (vs none) had a higher negative affect still in 2022 (1.26, 0.82 to 1.71). Worries about economy were not found to be associated with later negative affect. Greater concerns about receiving medical treatment along with other aspects of the pandemic, such as its impact on lifestyle or relationships, were strongly and persistently linked with higher negative affect measured up to 2.5 years from the pandemic's outbreak. Our study emphasises the importance of preventing pandemic-related worries and anxiety, as these can have long-lasting post-crisis consequences on people's wellbeing. However, it is not enough to pay attention to wellbeing of young people during a crisis as it has been declining already prior to the pandemic.

Trends in Sexual Assault in Switzerland: Findings from the Zurich and Vaud Youth Surveys 1999-2022

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The Zurich Youth Surveys (ZYS 1999-2021) and the related Vaud Youth Surveys (VYS 2014-2022) are aimed at measuring the “dark figure” of youth delinquency and substance use, both from the victim and the perpetrator perspectives. At each data collection, representative samples of about 2’500 ninth graders (age 15) and 1’000 eleventh graders (age 18) were assessed in class-based written surveys. As the two sites represent the two major linguistic regions of Switzerland, and cover over 25 % of the Swiss youth population, concurrent findings from these cantons can be tentatively interpreted as representative for the entire country.

One of the key concordant trends across the two sites for the most recent report period (2014-2021/22) was a sharp increase in self-reported victimisation rates of sexual assault and rape, with approximately doubled prevalence rates. In this presentation, we will introduce the ZYS and VYS studies, and analyze trends in sexual assault with regard to victim, perpetrator and situational characteristics. We will also present and discuss divergences between the victim- and perpetrator-reported trends in sexual harassment.

A Nationwide Cross-Sectional Study on HPV Vaccination in Adults in Switzerland: An Analysis of Age, Sex and Regional Differences in Vaccine Coverage and Factors Affecting Vaccine Uptake

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Aim: The human papillomavirus (HPV) is associated with a variety of diseases, including cervical cancer, a subset of head and neck cancers and anogenital warts. To control HPV-associated disease, the Federal Office of Public Health has set a target of 80% vaccination coverage. Currently, information on vaccine coverage rates (VCR) for HPV in 16-year-old adolescents in Switzerland are determined via the Swiss National Vaccination Coverage Survey (SNVCS). However, little is known regarding HPV adult vaccine coverage and the factors that affect uptake. This study assesses nationwide vaccine coverage in the adult population aged 18-45.

Methods: We conducted a nationwide, cross-sectional survey by mail. Study participants were requested to provide vaccination records and to complete a questionnaire assessing factors potentially affecting vaccination uptake including: age, gender, region, and self-reported data on healthcare usage/access, knowledge of HPV disease and vaccination, and/or perceptions/attitudes towards HPV disease and vaccination.

Results: Of 43,036 contacted individuals, 7,076 (16.4%) responded and 5,651 (13.1%) participated by returning a completed questionnaire and/or copy of their current vaccination record; 38.9% were male. In a preliminary analysis 46.6% of males and 84.2% of females reported they were aware of an HPV vaccination recommendation. Nearly 80% of individuals recognized that HPV was associated with cervical cancer, though recognition of other HPV-associated disease was lower. While only 17.2% of men and 54.3% of women self-reported being vaccinated against HPV, 56.5% of unvaccinated men and 48.5% of unvaccinated women reported willingness to be vaccinated.

Conclusions: Understanding HPV VCR in the adult population and factors that impact uptake will allow the development of tailored public health campaigns to increase HPV vaccination uptake and is an important step towards the WHO's goal of eliminating cervical cancers, as well as the elimination of other HPV-associated cancers.

How predictable is having a child in the next three years? Results of the first data challenge in population research

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A data challenge is a competition where many researchers work on the same dataset to make the best predictions of a well-defined outcome. Clear measures of predictive ability allow easy comparison of the strength of models and encourage participants to improve upon existing benchmarks. Data challenges led to major progress in data science by fostering the development of new algorithms with increasing predictive ability. Data challenges can also accelerate scientific progress because the ability to compare different models gives insights into the research problem at hand. However, in the social sciences data challenges are still rare. Here we present results of the first data challenge in population research, the Predicting Fertility (PreFer) data challenge. Hundreds of researchers engaged in the first phase of the data challenge where they used Dutch survey data to predict who had a child in 2021-2023 based on thousands of variables from 2007-2020. Selected researchers were also invited to work with Dutch administrative data to predict the same outcome. This setup provided a unique opportunity to study the limits of the predictability of fertility. Models combining theoretical knowledge about fertility behaviour and advanced machine learning algorithms outperformed theory-driven models in terms of predictive ability, providing novel insights into the complexity of fertility behaviour. We discuss the limits of predictability of fertility and how survey data and administrative data place different constraints on predictive ability. We further discuss how data-driven approaches can complement theory-driven research and how data science techniques can advance population research.

Predicting patient outcomes and risk for revision surgery after hip and knee replacement surgery: comparison of modelling approaches using the Swiss National Joint Registry (SIRIS)

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Objectives: Prediction of postoperative patient-reported outcomes and risk for revision surgery after total hip arthroplasty (THA) or total knee arthroplasty (TKA) can inform clinical decision-making, health resource allocation, and care planning. Machine learning (ML) algorithms are increasingly used as an alternative to traditional logistic regression (LR) prediction, but there is uncertainty about their superiority in overall model performance. The aim of this study is to compare the predictive performance of LR with different ML approaches for predicting patient outcomes and risk for revision surgery after THA and TKA.

Methods: A population-based historical cohort study will be developed using routinely collected data from all primary and revision THA and TKA procedures performed in Switzerland and registered in the Swiss National Joint Registry (SIRIS). Patients of age ≥ 18 years with surgery for primary osteoarthritis from 01 January 2015 up to 31 December 2023 will be included. Outcomes of interest will be 1) 12-months postoperative poor pain outcome (defined as $<50\%$ improvement of pain or <3 absolute reduction in pain on a 11-point (0 to 10) numeric rating scale) and poor satisfaction outcome, and 2) early revision within five years after primary surgery. Prespecified predictor variables will include demographic characteristics, comorbidity score, patient-reported health status measures, and surgical variables. Measures of overall predictive accuracy, discrimination, and calibration will be used to compare predictive performance, and decision curve analysis performed to evaluate clinical usefulness of models. The models will be internally validated using cross-validation, and externally validated using geographical validation.

Results: Up-to-date findings will be presented by the conference date.

Relevance: Prediction models as decision support tools may support preoperative clinical decision-making, health resource allocation, and care planning. No risk prediction model using Swiss data has been published in this area, and other studies comparing predictive performance of ML algorithms are poorly reported."

Expanding Interrupted Time-Series methodologies for evaluation of population-level interventions

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Background: Interrupted Time-Series (ITS) methods are essential quasi-experimental models for evaluating interventions at the population level when there is no control group and traditional difference-in-differences methods are unfeasible. ITS methods use historical data to construct a counterfactual scenario (what would have happened without the intervention), model the observed scenario (what happened), and compute the average treatment effect by comparing the counterfactual with the actual data for the whole population. Despite various implementations of ITS methods, a framework providing best-practice guidance for practitioners is lacking. Additionally, traditional ITS methods do not incorporate recent advancements in causal machine learning for flexible estimation of counterfactual post-reform outcomes.

Research Question: We develop a new methodological approach for estimating interrupted time-series for impact evaluation at the population level in the absence of a control group, leveraging ensemble learners and insights from the causal machine learning literature. We extend the use of ITS to investigate heterogeneous treatment effects.

Application: As an illustration, we analyze the sequential implementation of two policies targeting low-value care in Switzerland. In June 2020, the Swiss Society of General Internal Medicine recommended against prescribing vitamin D screening tests, followed by the removal of these tests from the health insurance coverage in July 2021. We model the causal effects of these two population-level interventions using claims data from a major Swiss healthcare company. This example is used to showcase our methodological contribution.

Results: We present a list of recommended practices for researchers using ITS to uncover causal effects, including placebo and specification tests. Our approach is complemented by visualization recommendations, demonstrated through our illustration.

Monitoring objective and self-reported sleep in 150 Swiss adolescents for one week: HERMES cohort study

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In epidemiological studies, sleep is often quantified through the use of questionnaires and diaries. However, objective measurement tools, such as accelerometers, have been increasingly utilized over the past decade. The use of wearable sensors provides an objective methodology for the assessment of sleep behavior, whereas the self-reported sleep patterns in questionnaires and diaries may be susceptible to reporting bias. Depending on the device, software and the manner in which the accelerometer is handled, the objectively recorded data may be erroneous, and this may be identified and rectified through the use of self-reported data in conjunction with it. Furthermore, researchers may be interested in both the objectively recorded sleep patterns by the accelerometer, such as wake-up or sleep onset time, and the self-reported data, such as self-reported sleep quality, which provides valuable insights into self-perceived well-being.

The HERMES (Health Effects Related to Mobile phone use in adolescents) cohort study employs a dual approach, combining objective sleep measurements with self-reported sleep data collected concurrently. The aim of this study is to examine the effects of various exposures (i.e. radiofrequency electromagnetic field radiation and electronic media use) on mental health, cognition and behavior in adolescents. A nested measurement study is conducted with a subgroup of 150 participants, to monitor their sleep using accelerometers (GENEActiv) and sleep diaries in parallel to personal radiofrequency electromagnetic fields for one week. Preliminary analysis of data from 64 participants mean self-reported (objective) sleep duration was 8.80 ± 1.33 hours (7.77 ± 1.42). Spearman correlation between these outcomes was 0.36. It was concluded that a dual approach to collect sleep data using sensors and self-reports is improving the data quality for subsequent epidemiological analysis.

Longitudinal natural language processing analysis of major life events from adolescence to young adulthood in a large urban cohort study

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Background: Recent studies show an increase in mental health problems among young people oftentimes labelled 'youth mental health crisis'. Studies are needed to identify underlying causes of these trends. Research on risk and protective factors should harness young people's first-hand experiences to gain deeper insights and new intervention strategies.

Aims: This study aims to investigate major life events identified as highly significant by young people, the emotional valence of these events, and how their key themes change from adolescence to young adulthood.

Methods: In the Zurich Project on Social Development from Childhood to Adulthood (z-proso, N≈1500), participants responded to a qualitative question asking about their most significant life event across four measurement occasions between the ages 13 to 24. We analyzed themes in N=... narrative descriptions using dynamic topic modelling with the Python library 'BERTopic', combining conventional techniques with large language models (LLMs) to track topic evolution over time. We also examined the emotional valence of these events and how they related to the overarching topics of the narratives.

Results: Young people predominantly described the following events as positive: personal relationships, academic success, securing an apprenticeship or personal development. Conversely, negative experiences were often related to the loss of a loved one or the experience of mental distress or illness.

Conclusion: This study contributes to a deeper understanding of diverse themes of self-reported positive and negative life-events along development from adolescence into young adulthood and may serve as a precedent for future longitudinal population research using large-scale text data through natural language processing techniques.

Human Biomonitoring in SHeS-pilot: study design and findings

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In Switzerland, health data on the general population are mostly fragmented, local and heterogeneous. There are only few studies that take into account the broad and interconnected cumulative health effects of life-course exposures to different stressors, including toxic chemicals. Population-based cohorts enable the investigation of determinants of health and disease, thus supporting public health decisions and policies. Recognizing this, the Federal Council has mandated the Federal Office of Public Health to evaluate the possibility of establishing a national health cohort with human biomonitoring denoted by the Swiss Health Study (SHeS).

In order to assess the feasibility and requirements of such a study, a pilot study among healthy adults was carried out in the cantons of Berne and Vaud in 2020-2021 in collaboration with Unisanté, the University of Berne, and the Swiss Biobanking Platform. This pilot study (SHeS-pilot) recruited participants by inviting inhabitants drawn randomly from the population register of the Federal Office of Statistics and collected information on medical history, exposure determinants (lifestyle, eating habits, indoor exposure, etc.), and attitude towards health research. It also included a health check-up at the two study centers in Berne and Lausanne and collection of biological samples in 789 participants aged 20-69 years.

Urine and blood biosamples were analysed for various chemical substances known to be environmental pollutants. Substance selection was based on public interest, health relevance, and methodological aspects. The selection included metals, 30 of the most relevant per- and polyfluoroalkylated substances (PFAS), and glyphosate and its main metabolite, AMPA. We described the level of exposure of the adult population and explored potential sources of exposure by correlating exposure to dietary habits and other self-reported behavioural factors.

This presentation will focus on the study design of SHeS-pilot, selected results of the analysed metals and the learnings for feasibility of a larger-scale national study.

Adaptive Questionnaires in Political Surveys

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Digital questionnaires are widely used in public opinion mining, voting advice applications, and online deliberation. Typically, these applications present each user with the same set of questions in a fixed order. When designing a questionnaire, researchers often face the challenge of balancing information gain with user fatigue, necessitating brevity. Our study investigates the benefits of adaptive questionnaires in the context of political surveys. We employ a statistical model to (i) predict users' answers individually based on their previous responses and (ii) select the most informative question to pose next. Building on item-response theory, we demonstrate that this adaptive approach significantly reduces the number of questions required to gather nearly the same amount of information. For instance, our model can predict candidates in voting advice applications three times faster than the standard questionnaire. In ongoing work, we address the cold-start problem of such adaptive questionnaires in the absence of training data for the model, as encountered in public opinion mining or wiki surveys. Additionally, we conduct a user experiment to evaluate whether users trust our question selection strategy. In summary, we show that adaptive questionnaires provide researchers with a powerful tool to accelerate opinion mining across a large pool of items while minimizing the cognitive load on users. This approach offers a significant improvement in the efficiency of data collection without compromising the depth and quality of the information gathered.

Addressing Sensitive Questions Response in Large- Scale Survey of India: Impact of Fieldworker and Social Desirability Bias

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Objectives: Accurate data plays a vital role in formulating policies and programs effectively, especially when concern is about women justifying wife beating, which is a proxy for low women empowerment and acceptance of intimate partner violence, which is highly prevalent in low- & middle-income countries like India. In light of the sensitivity of the issue, this study focuses on the fieldworker effect as well as the impact of social desirability bias on reporting women justifying beating in India.

Methodology: The study utilizes the fifth round of the Indian National Family Health Survey (2019-21) data. Along with descriptive and bivariate analysis, the cross-classified multi-level model was used to examine the fieldworker's effect and propensity score matching (PSM) for estimating social desirability bias.

Finding: The fieldworker effect accounted for around 29 % to 33% of the variation in respondents justifying beating (i.e., going out alone, neglecting children, arguing, refusing sex, and burning food). The results from PSM show reporting was lower due to social desirability bias for justification of beating for going out without telling husband, refusing to have sex with husband, and burning food was 4.3% (95% CI: 1.5-7.2), 6.1% (95% CI: 3.7-8.5) and 5.4% (95% CI: 2.7-8.1) respectively.

Discussion: This study emphasizes the crucial need for better comprehension of how fieldworkers influence data outcomes, mainly when dealing with sensitive or stigmatized topics related to justifying the violence (beating or hurting) by husbands. Also, social desirability leads to less reporting of justification of violence. The findings emphasize the importance of contextual factors in developing effective intervention policies. Also, it underscores the necessity of offering additional guidance and training to fieldworkers when gathering such delicate information.

Application of Machine Learning Techniques to Predict Turnout Rates in Sweden from Demographic Data

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Numerous studies have highlighted the significant influence of demographic factors on election turnout rates (e.g., Glenn & Grimes, 1968; Goerres, 2007). Gender, education, and age have consistently emerged as the most influential predictors of voter participation over the past five decades (Glenn & Grimes, 1968). Despite the widespread acknowledgement of the importance of demographic data, fully grasping their impact on political engagement poses a challenge. Consequently, the focus of this paper is to explore how a basic set of socio-demographic factors can be leveraged to forecast participation rates in the Swedish parliamentary elections at the national level i.e., to which extent demography alone can forecast election participation and address the question of whether demography is destiny.

In order to offer an answer to the question above, the study utilized random forest methods to estimate the model on turnout rates in 2002, 2006, 2010 and 2014 and validate it using out-of-sample data from 2018 and 2022, on data from the National Election Study of Sweden. Although it shows significant predictive power, for the 2018 election cycle, the model prediction ability has been significantly reduced. Possible reasons for the observed results are discussed. In the next step, the data frame is going to be expanded, and the predictivity power of our model will be checked on data from 1976 to 2022.

The use of machine learning methods has the potential to provide valuable insights by uncovering existing connections and enhancing predictive accuracy compared to conventional approaches. This broadens the application of socio-demographic data from merely describing participation trends to effectively forecasting their levels. Consequently, if these methods can attain high precision, the modelled predictions can become pivotal in strategic decision-making.

Estimating Population Parameters in Changing Societies. Offering a Tool to the Interdisciplinary Research Community by Keeping Representation Bias Low in General Population Surveys

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High-quality general population surveys institutionalized through specialised data infrastructures are an important tool to learn about various aspects of society, both for researchers across disciplines as for policy makers. Their general nature often involves interdisciplinary and international collaboration, not only regarding the topics covered but also regarding methodological questions about how to field surveys, formulate questions etc. Their advantage lies in their quality samples and fieldwork, making it possible to estimate population parameters across the full population, which is why they're often called representative surveys.

However, the way surveys are conducted is also dependent on societal developments. Currently, general population surveys are pushed to innovating their designs and switch from interviewer-based modes to self-completion modes using web/paper mixed modes, because societal changes make interviewer-based modes expensive and complicated. This raises the question whether the mode change affects representation bias. At the same time, a new mode offers new opportunities for collaboration and methodological innovation. Using data from two international general population surveys, i.e., the European Values Study and MOSAiCH, that are fielded by FORS in Switzerland and are based on the Swiss register-based sampling frame from the Federal Statistical Office, we first present an analysis of risk for representation bias across designs and different applications. Applying an innovative framework to analyse the risk of representation bias taking different benchmark data into account (sampling frame, population data and substantial variables from survey data), we show that potential effects on representation bias can differ across different types of applications, but that, overall, the risk for bias is low given the high-quality sampling frame. Secondly, we showcase with examples from different disciplines and using different methodological approaches how researchers of various disciplines can field their questions and survey experiments within the MOSAiCH data infrastructure.

The validation of real-world digital mobility outcomes

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Background: Despite the increasing relevance of mobility impairment, there are no tools available to measure it in the real-world. The European Mobilise-D project developed 24 digital mobility outcomes (DMOs) to assess real-world mobility that target walking activity (amount, pattern) and gait (pace, rhythm, variability). The aim of this study was to validate these DMOs in patient populations.

Methods: The DMOs were measured in 2143 participants of the Mobilise-D prospective cohort study, including persons with Parkinson's disease, chronic obstructive pulmonary disease, multiple sclerosis, and after proximal femoral fracture, recruited from 17 sites in 10 countries and assessed every six months for 2 years. Construct validity was explored using Spearman/Pearson correlations and a-priori expectations. Ability to detect change was assessed by standardised response mean in strata defined by self-reported global impression of change and changes in constructs meaningful to patients. MIDs were triangulated using distribution- and anchor-based methods.

Results: Three groups of DMOs were identified: 1) DMOs showing good construct validity and ability to detect change across all diseases and overall cohort (walking duration, number of steps, number of bouts any duration or >10s, average and maximum walking speed in longer bouts, stride length in longer bouts), 2) DMOs showing good construct validity and ability to detect change only in some diseases (number of walking bouts >30 and 60s, bout to bout duration variability, walking speed in shorter bouts, stride length in shorter bouts, cadence in all and longer bouts, maximum cadence, walking speed bout to bout variability, stride length bout to bout variability), and 3) DMOs that exhibited generally poor results in construct validity (average and maximum bout duration, stride duration in shorter and longer bouts, cadence bout to bout variability, stride duration bout to bout variability).

Conclusion: The developed and validated DMOs offer a new opportunity to evaluate real-world mobility. "

The Swiss Household Panel: the potential of a long running household panel for population research

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"The Swiss Household Panel (SHP) surveys a random sample of households in Switzerland annually since 1999 aiming to observe social change. With information available for about 32,587 individuals from 17,708 households spanning so far 25 years, the SHP offers data covering a multitude of domains studied in the social sciences. The SHP surveys all household members from 14 years separately, and then follows them over time. Refreshment samples are added regularly to maintain representativeness. The core annual questionnaire is complemented by rotating modules and biographical information to cover the complete life span. The analytical potential is expanded by the possibility to combine survey data with contextual geographical information through geocodes and with register data through data linkage. The SHP is currently exploring the possibility of collecting genetic information from our panel members, which would open up a whole new avenue of research linking social sciences and health sciences.

Although being a long running panel, the SHP has always adapted to changes in the population, the research environment, and the context of data collection, and is open to new collaborations. In our presentation, we will showcase the analytical potential of the SHP for population studies, covering the social sciences as well as social epidemiology and population health and well-being related research.

The potential of using health insurance claims data for population research

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Background: Health insurance claims data, based on the tariff positions billed by healthcare providers (such as DRGs) and covered by mandatory health insurance, are a valuable source for population health research. Health insurers like SWICA, with representative nationwide coverage, provide a rich source of data that serves as a viable alternative to national health databases, especially in countries like Switzerland where such databases do not exist. The SWICA database covers a comprehensive range of healthcare services and patient interactions, collecting data on treatment types, diagnoses, procedures, medicine prescriptions, and costs. These data are highly relevant to public health studies, providing insights into healthcare utilisation, treatment outcomes, and population health trends.

The aim of this presentation is to highlight the advantages and limitations of using health insurance claims data in health and public health research, using practical examples from current and future research projects.

Methods/Results: We demonstrate a standard procedure for using claims data in health research, including plausibility checks and sample representativeness. We use descriptive statistics to illustrate how the data can be used to make statistical inferences about the population, regional variations, prevalence rates and economic burden. Additionally, we model our data using standard statistical tools such as regression analysis and longitudinal data analysis, as well as novel approaches like machine learning methods, to explore correlations, to identify patterns and evaluate public health interventions.

As examples, we will discuss the following projects:

- Evaluation of guideline adherence to evidence-based recommendations
- Assessing the prevalence of chronic conditions in subpopulations
- Estimating of the economic burden of high-priced medicines

Discussion: Challenges in using claims data include ensuring data completeness, representativeness, and accuracy, addressing biases in claims reporting, navigating varying coding practices, and identifying health-relevant outcomes from tariff classifications. Comprehensive data cleaning and validation procedures are essential to ensure reliable and meaningful research outcomes.

Swiss LGBTIQ+ Panel - Assessing the Impact of Legal and Social Changes on LGBTIQ+ Individuals

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Despite legal advancements like protections from discrimination, marriage equality, and facilitated gender changes on official documents, challenges persist for lesbian, gay, bisexual, trans, inter, and queer (LGBTIQ+) people in Switzerland. Discrimination and structural inequalities persist in society and healthcare, such as unnecessary operations on intersex children, lack of legislation against non-consensual medical interventions, and conversion therapies, leading to health disparities among LGBTIQ+ people. To better understand the experiences and challenges of LGBTIQ+ people in Switzerland, we initiated the Swiss LGBTIQ+ Panel in 2019. The Swiss LGBTIQ+ Panel aims to extend our understanding of LGBTIQ+ individuals' integration into Swiss society and how their situations change over time. Importantly, the LGBTIQ+ community consists of many sub-populations differing in sexual orientation, gender identity, sex characteristics, and intersecting identities. Therefore, another central aim of the Swiss LGBTIQ+ Panel was to include all subgroups within the LGBTIQ+ community, as well as interested cisgender heterosexual endox people. We further considered it essential to represent all language regions in Switzerland, so the survey is available in German, French, Italian, and English. Finally, it is crucial to follow individuals over time to shed light on how opinions and life satisfaction evolve gradually over time or in response to societal events, such as recent legal changes or increasing anti-trans rhetoric. Thus, we conduct the survey in an annual manner. Through joint efforts, up to 3,500 participants have participated in our surveys. In this presentation I will present the Swiss LGBTIQ+ Panel, key findings, and scientific projects, such as the impact of the marriage equality campaign on people's self-reported and biological stress. Finally, I will refer to international and national projects and outreach activities and conclude with ways to make research and society more inclusive of LGBTIQ+ populations.

Let's answer this question together: interdisciplinary approaches in pediatric health care research.

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Research objectives: Pediatric health care in Switzerland faces clear disparities regarding the distribution and accessibility of service providers needed, and fluctuations of utilizations, which depend on various factors. Examples are dysbalances of pediatric primary health care providers throughout Switzerland, regional clusters of therapists providing early interventions for children with developmental delay, or the dynamics of emergency visits in pediatric hospitals during the SARS-Cov2 pandemic. However, pediatricians don't have the necessary technical expertise to conduct sophisticated spatial analyses, or to develop complex predictive models needed for state of the art in pediatric health care research.

Methodology: Based on a combination of various data sources (i.e., hospital data, physicians' billing information, register data from a cantonal register of children with developmental delay, and publicly available data), we applied spatial statistics to map, model, and visualize our data.

Key findings: We visualized the accessibility of pediatricians in the canton of Zurich for children with developmental delay and found major differences between rural and urban regions as well as better accessibility closer to greater early intervention institutions. Also, we mapped the available workforce of pediatricians in private practices in Switzerland in 2019, and modeled the need for additional workforce to compensate for retirements until 2029. Furthermore, we visualized the dynamic changes of the catchment areas of children visiting pediatric EDs during the SARS-Cov2 pandemic.

Discussion: Our findings highlight spatial inequalities between healthcare and early intervention needs and services on a regional, cantonal and national level in Switzerland. Our research contributes to a better understanding of spatial access to healthcare and informs healthcare policy makers about accessibility of primary care, emergency care, or early interventions. Interdisciplinary collaborations on the field of pediatric health care research and health geography offer great opportunities to answer research questions and interpret data from a broader perspective."

Human development, basic needs and city out-migration: Subnational perspectives on the mobility transition

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While the influence of human development on international migration has been widely examined, its implications at the subnational scale, particularly between cities, remain largely unexplored. This paper investigates whether internal outmigration from cities, as a function of human development follows the inverted U-shaped curve —also known as the mobility transition hypothesis—that links emigration to economic development. The study adopts a broader definition of development by incorporating key dimensions such as health, knowledge, and standard of living. Additionally, household assets are analyzed to provide insights into basic needs beyond conventional economic determinants. Through comparative empirical analysis this study examines city out-migration based on 56 population censuses in 27 countries across the Global South, covering the entire development spectrum. Fixed-effects Poisson regression models are used to analyze data from socio-demographic and migration data from 600 consistently identified functional urban areas. The analysis reveals that within-city responses to development do not exhibit an inverted U-shaped pattern for overall development or any of its components. However, when accounting for cities' positions in the urban hierarchy, the results demonstrate unique trends, with mid-sized cities showing the strongest outmigration response in initial phases of development, particularly in relation to education. This study enhances the understanding of human development and migration dynamics at the subnational level, offering new insights into the role of urbanization and city size in shaping migration patterns. It also contributes to the broader discourse on migration decision-making through the lens of human development.

A Systematic Examination of the Morbidity Profiles of Immigrants and Natives in Norway

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Immigrants often initially exhibit better health outcomes than native-born populations of similar socioeconomic backgrounds. Still, this advantage tends to diminish over time due to factors such as acculturative stress, occupational hazards, discrimination, limited healthcare access, and unhealthy behaviors. In Norway, the immigrant population is diverse regarding country of origin, migration motives, and socioeconomic standing. Many studies oversimplify immigrants by their continent of origin, overlooking significant diversity within these groups and the reason for migration. Additionally, the interaction of migration and gender influences health inequalities among immigrants, a factor often neglected in previous research.

While studies have focused on disparities in hospital admissions, mortality rates, and healthcare-seeking behaviors, variations in morbidity profiles, particularly in illness composition among immigrants compared to natives, are less understood. In Nordic countries, few studies have investigated these morbidity profiles.

This study aims to uncover whether and to what extent immigrants and natives exhibit different morbidity profiles. Specifically, we aim to identify morbidity profiles based on nativity (country of origin), reason for migration (economic, educational, family reunion, political), and gender.

We utilize data from the Norwegian Population Register and the KUHR database from 2017, focusing on residents aged 27 and older. This dataset includes 599,567 first-generation immigrants and 2,917,335 native-born individuals, providing information on country of birth and reason for migration. Our primary variable is based on all diagnoses documented by general practitioners in 2017. We discern prevalent diagnostic patterns using latent class analysis and use multinomial logistic regression to analyze the impact of birth country, reason for migration, and gender on health patterns.

The anticipated outcomes include a detailed overview of health profiles segmented by country of origin, reason for migration, and gender across the Norwegian population.

Should I stay or should I go? Unmet migration expectations and outmigration of skilled recent immigrants to Switzerland

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Many knowledge-based economies are facing growing needs for skilled labour due to ageing populations, unsustainable fertility rates, and the ongoing green and digital transitions. Governments therefore increasingly depend on highly skilled immigrants in particular to respond to these challenges. However, highly skilled immigrants are probably more at risk of leaving their current country of residence compared to their lower-skilled counterparts. Empirical evidence suggests that highly skilled immigrants react stronger to unmet migration expectations because their expectations to do well, fare well and be treated equally are particularly high, thus being more prone to be disappointed. Being highly qualified and more likely to cope with monetary and psychological consequences of migration decisions, such disappointment might lead them to pursue alternative career perspectives elsewhere in the global labour market, eventually making them leave the country. We analyse how unmet migration expectations of immigrants affect the probability of leaving their current destination country, and whether there are educational differences. We use panel data of recent immigrants to Switzerland from the Migration-Mobility (MMS) Survey and link them with administrative data to obtain information on immigrants' whereabouts after being surveyed. Overall, we find that disappointed migration expectations increase the probability of immigrants to leave the country after the survey. Among the immigrant population with permanent residence (C) permit, we find no educational differences, but we do find a generally higher likelihood of out-migration for highly skilled immigrants in the population with temporary residence (B) permit. In addition, the stronger the migration disappointment, the greater is the likelihood of out-migration for highly skilled immigrants with B permit, making them particularly likely to leave. These findings suggest an increased risk of brain drain in the first years after arrival if highly skilled immigrants cannot meet their expectations and long-term prospects in the residence country are not secured.

Understanding the Gendered Structure of International Migration, 1960-2020

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A growing body of literature recognises a 'feminisation' of international migration, with women increasingly initiating and undertaking independent migration. However, it remains unclear how this phenomenon manifests itself at the aggregate level, across countries and over time. In this paper, we test the feminisation hypothesis and examine gender differences in migration patterns using new estimates of all country-to-country migration flows for over 200 countries from 1960 to 2020. To assess whether women's and men's international migration patterns have diverged over time, we introduce an innovative globalisation index that simultaneously measures migration intensity, spread, and distance. Our preliminary results suggest an overall increase in the globalisation of migration since the 1990s, but with sharp gender differences. Women's and men's international migration behaviour became more similar between 1960 and 1989, and then more dissimilar between 1990 and 2020, with women experiencing lower levels of globalisation. Moreover, we find that this latter result can be explained by gender differences in the choice of destination countries, suggesting that the feminisation hypothesis might not hold as women are more constrained in their destination choices than men. In addition to providing new estimates of international migration flows and serving as a methodological contribution, this research aims to enrich our understanding of the evolving dynamics of gender and migration in a comparative manner and over time.

Pre- and post-arrival effects on state and development of Refugees' mental health status in Germany.

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Previous research has shown that the mental health of refugees is affected by the difficult circumstances in their home country and the deteriorating conditions of travel. As a consequence, refugees have lower levels of mental health respect to other migrants and the population of the host country. Moreover, after arrival in the destination country, refugees' mental health can be negatively affected by problems occurring in their everyday lives, such as discrimination and worrying about the granting of the permit status. This study aims to investigate pre-arrival and post-arrival characteristics that could affect the mental health of refugees in the long term, knowing the complexity of both pre-arrival and post-arrival conditions in shaping the mental health of refugees. We focus on refugees in Germany, considering data from 2016 to 2020. We want to address two research questions: 1) Which pre-arrival characteristics influence the initial mental health of the refugees at the first interview? 2) Which changes in everyday life affect the mental health of the refugees over the first five years in Germany? We used data from the German IAB-BAMF-SOEP Survey of Refugees that started in 2016. We assessed the mental health status through the Mental Component Score (MCS) derived from the SF-12 questionnaire. In the case of the refugee sample, this measurement is surveyed in the SOEP panel during the first interview and after every second year of the surveys. Our pre-arrival analysis shows that the refugees' mental health is affected by the conditions in the origin country and the trauma during the journey to Germany. On the other hand, in the longitudinal analysis, the MCS is influenced by changes in the satisfaction of the refugee with the work and living situation, the worrying about life in Germany, and the possibility of returning to the origin country.

How to capture chronic conditions and multimorbidity within migrant subgroups in the German National Cohort (NAKO): Potentials and challenges.

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Objective: The population with a migrant background (PmM) generally differs from the autochthonous population in terms of morbidity, mortality and use of the health care system, but is less likely to participate in health research. The PmM group is very heterogeneous, which has not been taken into account in many studies.

Data: The German National Cohort NAKO is a population-based cohort study that started in 2014 and resulted in a final sample size of 204,862 participants aged 19-74 years in eighteen study centres that geographically represent specific study regions in Germany. NAKO includes a subpopulation of 35,014 migrants (17.1%) and 169,626 non-migrants (82.9%). The PmM group can also be defined as first and second generation. Information on country of birth was available for the first generation. All participants underwent the NAKO research and examination protocol, which includes self-reported health questionnaires, physical examinations, biosamples and more.

Findings: Capturing chronic conditions and multimorbidity within the PmM may be challenging, but also offers some potential for understanding demographic variation in specific health risks and behaviours across the population. There are significant differences in health outcomes between ethnic groups, but also between the generations of migrants in NAKO. First-generation migrants appear to be more affected by chronic conditions and diseases than second-generation migrants, but they have significant health disadvantages compared with the autochthonous German population.

Discussion: Large population-based cohort studies such as NAKO offers great potentials for studying chronic health conditions in specific subpopulations. On the other hand, there are some concerns about the representativeness of the study population. First, there are significant differences in the regional distribution of the migrant population between the 18 study centres. Secondly, only participants with a certain level of language proficiency were able to complete the study protocol. Migrants who have not lived in Germany for a long time, such as refugees, may be underrepresented due to their poor language skills.

Swiss Outpatient Pediatric Research Network

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Introduction: In Switzerland, more than half of pediatricians (over 1'300) work in private practices. However, there is limited inclusion of the outpatient sector in pediatric research and only limited data from this sector is available. Pilot projects have demonstrated the feasibility and benefits of a collaborative data collection on pediatric health issues, laying the groundwork for a nation-wide research network. However, so far there is no common understanding of how to best organize, govern, operate and fund a collaborative research network of pediatric practices. The aim of the project was to develop a basic framework for establishing a collaborative outpatient pediatric research network for data collection and sharing, targeted at promoting research projects for improving pediatric care quality.

Methods: Within a qualitative approach, we conducted individual online meetings, an online focus group, and an in-person workshop with pediatricians, other healthcare stakeholders and academics. The topics discussed covered motivations for joining a national pediatric research network, reasons for conducting research in primary pediatrics and challenges faced, experiences with similar network groups, and involvement in national research projects.

Results: The project has generated strong interest and enthusiasm among participants and highlighted the willingness of collecting data, collaborating in research projects and being part of a research network. On the other hand, stakeholders emphasized three main challenges related to the network implementation: time constraints/limited resources, data management/IT infrastructure, and funding. Our insights led to the outline of a three-step implementation plan for the national network starting from regional clusters and considering key aspects related to organization, infrastructure, funding, and knowledge transfer.

Conclusions: The results of our project highlighted the key elements to consider for the development of a Swiss Outpatient Pediatric Research Network. The establishment of such network would mark a pivotal advancement in addressing the existing gaps in pediatric healthcare research.

5G Scientist Monitor App: A tool for data collection and risk communication using a citizen science approach

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Nowadays exposure to radiofrequency electromagnetic fields (RF-EMF) from wireless communication is ubiquitous. Given the rapid technological development, there is considerable uncertainty about personal exposure to RF-EMF in the everyday life, which causes concerns about potential health risk in a part of the population. Within the EU-funded project ETAIN (Exposure To electromAGnetic fields and plaNetary health) we co-created with citizens an app for mobile phones, which makes use of the inherent capability of inbuilt sensors to detect the signal quality for mobile phone networks, WLAN and Bluetooth. The aims of the 5G Scientist Monitor are twofold. First, to collect RF-EMF exposure data and to produce maps of the distribution in the environment for research and risk communication. Second, to empower people to understand their everyday RF-EMF exposure from various sources including their own wireless device use and factors affecting it.

The co-creation process with citizens during the app development revealed four typical types of potential user: explorers, achievers, socializers and intellectuals, which are addressed by different features of the app. The flexible app interface consists of social, playful and educational elements as well as various RF-EMF exposure surrogates. For the latter, the phone sensor data are transformed into meaningful RF-EMF exposure units based on RF-EMF measurements close to body during different usage scenario such as making calls, browsing the internet or putting the mobile phone in flight mode. Public release of the first app version in the Play Store is planned for autumn 2024. Experiences of the subsequent citizen exchange and implications for the future app development will be presented.

Utilizing text data as indicators of mental health in large cohort studies: Insights from the Swiss z-proso Study

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Background: However, natural language processing has transformed the analysis of text data, making it possible to use large text datasets to assess mental health. Despite these advances, the potential of integrating text data with quantitative data in longitudinal population research remains largely untapped. The analysis of text-based data can reveal information that cannot be captured by standard questionnaires.

Aim: This study aimed to train a large language model-based classifier capable of identifying levels of mental health in text data focused on future-oriented content provided by young adults.

Methods: In the Zurich Project on Social Development from Childhood to Adulthood (z-proso, N≈1,500), participants answered two open-ended questions about their hopes and worries for the future. We trained a mental health text classifier using the German BERT model, a language model optimized for German. The z-proso dataset included these text entries paired with quantitative mental health scores to be predicted. This dataset was divided into training (75%), validation (15%), and test (10%) subsets. To train the classifier we used the Python Transformers library. To make the model explainable and identify the keywords driving the predictions, we implemented the Python LIME library, which works by introducing small changes to the original text data and analyzing their effect on the predictions.

Results: Preliminary results indicate that the classifier successfully identifies levels of mental health from textual data. Manual error analysis of misclassified data provided insights for model refinement and generalization. Model explanation analysis identified keywords that directed the model to predict higher and lower levels of mental health.

Conclusion: Integrating NLP into longitudinal population research offers significant potential for nuanced assessment and prediction of mental health. This current text-based approach complements traditional quantitative measures and holds promise for the development of personalized predictive models, paving the way for more tailored mental health interventions.

The Role of Citizen Science in Population Health Research

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Citizen Science (CS) refers to a range of participatory models for involving members of the public as collaborators in scientific research, from data collection and analysis to problem identification and solution development. Recently, CS has emerged as a relevant approach in population health research, allowing to address complex issues such as health inequities and global health crisis.

Health, both personal and global, is especially significant to the public, making it a prime area for participation and providing a unique opportunity for research to foster collaboration between professionals and community members. CS also responds to a growing pressure on researchers and policymakers to move beyond traditional collaboration to more engaged and interactive methods of knowledge production in personal health.

With advancements in technologies such as wearables, smart devices, and low-cost sensors, the potential for engaging citizens directly has expanded greatly, allowing researchers to tap into a rich reservoir of insights and perspectives that might otherwise be overlooked. From web-based self-recruiting in data-intensive projects, to advancing research on rare conditions, to compiling population-based biorepositories, public participation is already making substantial contributions in many areas.

Research findings in CS projects are grounded in real-world contexts, foster public trust and transparency in science, promote health literacy, and ultimately empower people and communities by giving them a voice and a stake in the research process. However, they do not come without challenges, including ensuring data quality, addressing ethical and privacy concerns, and navigating delicate power dynamics.

This session will highlight the different facets of CS in population (health) research, and the intrinsic value of integrating people's knowledge and lived experiences with scientific inquiry for results that are more aligned with people's needs and concerns. It will also provide an overview of the support provided by Citizen Science Zurich for the design and implementation of projects.

Development of an expert-informed Bayesian network model for predicting pain outcome after total knee replacement and addressing information needs of patients, surgeons and policymakers

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Background: Total Hip Arthroplasty (THA) and Total Knee Arthroplasty (TKA) are prevalent surgeries in Switzerland, improving patient quality of life when conservative treatments fail. The Swiss National Joint Registry (SIRIS) tracks about 98% of these surgeries, documenting approximately 22,000 hip and 18,000 knee replacements annually. Despite their success, 7% to 34% of patients experience poor pain outcomes, creating challenges for individuals and healthcare systems.

Shared decision-making, aided by accurate postoperative outcome predictions, improves care and costs. Prediction models help patients understand surgical risks and assist clinicians in planning. However, how best to communicate about prediction modelling is still unclear. Better communication strategies are needed, considering patients' emotional and clinical contexts.

Research objectives: Our project aims to qualitatively describe and assess individual health communication needs related to prediction modelling of hip and knee replacement surgery among patients, surgeons, and health system policymakers.

Methodology: We will perform a qualitative study using one-to-one semi-structured interviews with patients, surgeons, and health policymakers. The setting is primary care, relevant secondary care (knee and hip orthopaedic hospital departments), and the Canton Zurich Department of Health. Purposeful sampling will be used to select interviewees with relevant lived experience of hip and knee replacement surgery. We will recruit three groups of patients: 1) patients at the onset of symptoms of hip and knee osteoarthritis, 2) patients at the decision point for total replacement surgery in hip and knee, and 3) patients 1-5 years after hip and knee replacement surgery. Thematic analysis will be used to analyse the qualitative data. Consistent with a theoretical sampling approach, data collection will be continued until "sufficiency" is attained.

Relevance: Effective communication builds trust and supports patient decisions. Our project will help to bridge the gap between available prediction tools and their communication and use for improved personalised healthcare practice in Switzerland.

Talk2UZH (“Talk to us”): Collecting and Analyzing Spoken Answers at Scale in Population Research

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Background: Speech is the primary way people communicate in everyday life but is not commonly used in population-oriented research. One main reason is that there are great resource demands associated with working with natural speech data, especially at scale. This results in interview studies usually being limited to smaller sample sizes and studies with large sample sizes only collecting written responses. The Talk2UZH project aims to establish a secure transcription infrastructure that allows the utilization of spoken responses from large numbers of participants.

Method: Audio recording capabilities are built into a survey tool called Research Management Information System. The recording is transcribed on servers of the university of Zurich using the open-source speech-to-text program Whisper and the resulting text is displayed to the participant. The collected text data can then be analyzed using traditional Natural Language Processing methods like sentiment analysis or modern Large-Language-Model based approaches.

Discussion: This combination of technologies allows participants in surveys to speak into their smartphone, laptop or similar device to answer open-ended questions. This gives researchers the ability to collect long and in-depth free text answers from participants in a highly scalable manner alongside traditional quantitative measures. Multiple projects aiming to collect spoken answers from large numbers of participants utilizing this methodology will be entering the data collection stage during Summer and Fall of 2024. We aim to assess feasibility and acceptability of this technology and compare the collected speech-based answers with traditionally collected written answers on a variety of metrics.

Something is not nothing: Recreational substance use and cognitive functions in a large community sample of young adults with hair testing

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Background: Substances use has been consistently linked to cognitive impairments. However, prior studies primarily focused on highly selective samples of chronic and mostly intense users while relying on self-reported substance use measures of uncertain validity. Consequently, individual and societal consequences of more frequent recreational use patterns are still unclear.

Methods: This study examined n=850 young adults (48.6% female, Mage=24.4) from a community-representative age-cohort. Exposure to illegal substance use over the past three months was measured using quantitative hair testing. Sustained attention, working memory, and declarative memory were assessed employing a computerized test battery. Cross-sectional associations between substance hair concentrations and cognition were estimated using multivariable regressions controlled for sex, socioeconomic status, migration status, education, gaming experience, and tobacco and alcohol use.

Results: Three-month prevalence of objectively confirmed substance use was generally high, with n=386 participants (45.5%) tested positive for at least one illegal substance. Higher hair concentrations of $\Delta 9$ -tetrahydrocannabinol (Cohen's $d=0.40$) and codeine ($d=0.22$) were associated with lower sustained attention, while higher ketamine concentrations ($d=0.59$) were associated with worse declarative memory. Higher hair concentrations of cocaine and a higher polysubstance use severity index (PSUSI) were associated with both reduced attention (cocaine: $d=0.21$; PSUSI: $d=0.30$) and declarative memory (cocaine: $d=0.20$; PSUSI: $d=0.29$).

Conclusions: Substance use was frequent in young adults and even mainly recreational substance use was associated with reduced cognitive performance. These data may inform the ongoing debate on legalization of substances such as cannabis.

Next steps: As a next step, the present research design will be extended to incorporate previous assessment waves to categorize participants into different substance use profiles. We plan to use inverse probability weighting (IPW) to adjust the substance use profiles for baseline sociodemographic characteristics and potential confounders, allowing to estimate quasi-causal effects of temporal substance use patterns on cognitive functions.

Temporal trends in routine developmental assessments and urgent care consultations in Swiss children and adolescents

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Objectives: Subjective observations of health care professionals might provide clues on trends in health care utilization. For instance, observations by the Zurich Children's Hospital indicated a growing need for developmental assessments. Health insurance companies hold objective claims data on their clients, offering the opportunity to analyse utilization trends. We therefore aimed to find out whether combining clinical observations with objective claims data helps to find trends in utilization patterns.

Methods: In 2018 and 2023, 154'105 and 174'968 children and adolescents aged 0-18 years (mean ages: 8.9 (+/- 5.7) and 8.8 (+/- 5.6) years) with basic health insurance at SWICA, a Swiss health insurer with a market share of mandatory health insurance of 9.7% in 2022, were included. Descriptive and regression analyses on the number of patients with claims containing fees compensating for developmental paediatric assessments were performed. Key findings: Preliminary analyses revealed an increase of 35.5% in paediatric developmental assessments all over Switzerland. In 2023, one in seven children and adolescents had at least one developmental paediatric assessment. The proportion was highest in the Lake Geneva region (18.2%) and lowest in Eastern Switzerland (6.7%). The increase was more pronounced in physician practices compared with hospital outpatient settings. We will perform further health economical and care utilisation analyses regarding urgent care consultations. Results will be extrapolated to the Swiss general population using national census data.

Discussion: The objective increase in paediatric developmental assessments detected in quantitative analyses is in line with observations by medical experts in the field. Close cooperations between various players of the healthcare system allow research on practically relevant topics. In turn, relevant findings at the population level can serve as starting points to address changes in policy on health care provision, research priorities, and resource allocation to prevent undersupply in the Swiss health care system.

Neonatal health during the influenza pandemic of 1918-20

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Although it is well documented that pregnant women have higher risks of developing severe symptoms when contracting influenza, less is known about the impact on the pregnancy itself. Understanding these effects is crucial for population health, especially during pandemics. Our objective is to assess whether maternal influenza affected pregnancy outcomes during the 1918 flu pandemic, in the Swiss city of Lausanne. We mostly focus on birth weight, since it is associated with higher risks of chronic diseases later in life, but we also consider other anthropometric measures and rates of preterm birth (gestational age <37 weeks) and stillbirth.

We use archival data from the only maternity hospital which existed in Lausanne at the time, and focus on over 2,000 individual singletons delivered between 1918 and 1920. This seemingly small dataset can provide insights relevant for population health. Three hundred mothers reported having had the flu during pregnancy. Using generalized linear models adjusted for covariates such as maternal height, age, civil status and neonatal sex, we find that maternal influenza led to higher rates of preterm birth and low birth weight (<2,500g), as well as lower infant size (birth weight and head circumference). When we consider the trimester of infection, influenza mostly affected pregnancy outcomes when the mother was ill during the third trimester. Civil status was an important determinant of neonatal health in our models, with higher risks of preterm birth and smaller infant size when the woman was single, pointing towards an important socioeconomic effect.

Influenza pandemics have occurred regularly throughout history and have the potential to occur again. Our findings underscore the importance of monitoring maternal and fetal health in the case of a flu pandemic, as well as advocating for influenza vaccination.

Gender and educational trends in lifetime risk, age at onset, expectancy, and survival with cardiovascular disease in Finland, 1996-2020

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Background: Cardiovascular disease (CVD) is the leading cause of mortality globally. Examining the trends in CVD burden and associated sociodemographic disparities can contribute to tailoring policies promoting cardiovascular health and narrowing health disparities. However, existing studies predominantly focus only on mortality. Therefore, we contribute to the epidemiological literature by providing a more comprehensive understanding of the CVD trends by studying the diverse aspects of CVD burden: lifetime risk, onset age, CVD-free life expectancy, and survival with CVD. We focus on the overall Finnish population in 1996-2000, as well as gender and educational disparities.

Methods: We use sociodemographic information from individual-level total population registers, which are linked to hospital discharge and Cause-of-Death Register, on the Finnish population aged 40-100 years in five five-year periods in 1996–2020 (N=2,796,732–3,273,232). We employed multistate models to derive the study metrics.

Results: Overall, CVD's lifetime risk stabilizes at 72% following a rise, with onset age and CVD-free life expectancy increased by 3 years. Although men bear a higher CVD burden, they experience a greater increase in onset age and CVD-free expectancy than women. Educational disparities in CVD-free expectancy persist, exceeding 3.5 years for men and women. Furthermore, survival with CVD has extended by 2.8 years but educational disparities widen.

Conclusions: Encouraging cardiovascular health trends emerge in the overall Finnish population. While gender disparities in onset age and CVD-free expectancy narrow marginally, educational disparities persist. More targeted preventive measures are warranted for men and the least educated to expedite their disproportionate CVD burden reduction.

Data Driven Classifications of Psychopathology: An Investigation of Internalizing Disorders in Childhood

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The validity and reliability of categorical nosologies of psychopathology has been long under scrutiny. In response, alternative empirical and dimensional models have been suggested. In particular, the Hierarchical Taxonomy of Psychopathology (HiTOP) adopts an empirical, hierarchical, dimensional and transdiagnostic approach to understanding psychopathology. The present work utilized the HiTOP's internalizing dimension as the theoretical basis, thus focusing on the psychopathological dimensions of Distress, Fear, Eating Pathologies and Sexual Problems. The first goal was to replicate the internalizing structure with childhood data from the Healthy Brain Network (2357 children aged 5 to 21 years; 65.7% male, mean age = 10.46). Exploratory (EFA) and confirmatory factor analyses (CFA) were conducted, utilizing 78 variables describing behavioral internalizing symptoms. Consequently, an alternative structure to that of the HiTOP was proposed including four latent factors: Depressivity, Nervousness, Social Fears, and Obsessions, Compulsions and Sexual Tendencies (OCS). This structure was invariant to sex (male/female) and to age (pre/postpubescent), but not fully invariant to individuals with at least one internalizing diagnosis, in comparison to those without one. Structural equation modeling (SEM) provided insights into the relationships among the latent factors, notably emphasizing associations between Depressivity and OCS, Depressivity and Nervousness, as well as Nervousness and Social Fears. Additionally, nine predictors were examined, with the most significant influences being a negative attitude towards the child, parental life dissatisfaction, inconsistent discipline, and bullying by peers. All extracted models (EFA, CFA, SEM, SEM with predictors) provided good model fit, and were retested with a separate subset from the sample. Future longitudinal studies investigating the relationships of demographic variables to lower-level symptoms and traits may elucidate predictive paths in childhood psychopathology. Additionally, studies should assess the structure of other HiTOP spectra in childhood, as well as in other specific age groups.

Explaining Social Disparities by Emulating Interventions at Different Life Course Stages

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Research Objectives: This study aims to identify promising targets for reducing social disparities by emulating interventions at different life stages, focusing on health disparities with respect to social origin.

Methodology: The study employs advanced causal mediation analysis, including randomized intervention analogues and interventional effects approaches, to address biases resulting from treatment-induced mediator-outcome confounding. The study shows that while it is possible to account for this bias using novel methods of causal mediation analysis, conventional methods cannot address this bias.

Population Data Sample: Data are drawn from the Survey of Health, Ageing, and Retirement in Europe (SHARE), encompassing over 20,000 non-institutionalized individuals aged 50 to 60 from 15 European countries (Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Israel, Italy, Luxembourg, Netherlands, Slovenia, Spain, Sweden, and Switzerland). The sample excludes migrants to avoid comparability issues regarding educational attainment and health selection biases.

Key Findings: The analysis reveals significant origin-specific health disparities in older age. These disparities are substantially reduced when educational attainment is high. Conversely, fixing educational attainment at a low level leaves significant health disparities. Additionally, interventions disrupting the link between childhood health and educational attainment can significantly reduce health disparities in older age.

Results Discussion: The study shows that precisely defined theoretical estimands and novel analytical methods are crucial in explaining social disparities. By emulating interventions at various life stages, the findings provide empirical evidence to guide policy interventions aimed at reducing health disparities related to social origin. Overall, this research highlights the importance of integrating life course theories and intersectional perspectives to better understand and address the mechanisms underlying social inequalities.

Key words: inequality, life course, causal mediation analysis, decomposition analysis, health disparities

Long-term Mortality Effects of the 1918/19 Pandemic Birth Cohort in Switzerland

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Infectious diseases, especially pandemics, can have lasting health consequences beyond the immediate effects. Exposure to the 1918/19 pandemic or other unfavorable conditions in utero has been shown to be associated with an increased risk of lasting adverse effects on health, mortality and socio-economic status in adulthood. In addition, the high number of remaining early orphans in the 1918/19 birth cohort (as in 1918, mortality affected disproportionately those in reproductive ages, 20- to 40-year-olds) could also lead to socio-economic disadvantages in early life resulting in adverse effects in adulthood. For Switzerland, it has already been shown, that the birth cohort of 1918/19 exhibited a decreased life expectancy compared to adjacent birth cohorts. However, the causes of death that contribute to the increased mortality risk experienced by the 1918/19 birth cohort have not yet been investigated. The factors for the increased risk of death and the specific causes of death that are responsible for this are also still unknown. The aim of this study is to determine potential mechanisms leading to a higher mortality risk in the 1918/19 birth cohort through the analysis of mortality by cause. In addition, the effects of the pandemic on socio-economic factors of this birth cohort are analyzed in comparison to the surrounding cohorts. To analyze that, individual deaths data from the cause of death statistics from the Swiss Federal Statistical Office for the years 1969 – 2022 will be used. Unlike most analyses by cause of death, instead of relying exclusively on the underlying cause of death in the death certificate, we will complement this information with contributory causes by including data-driven weights. In addition, the "Swiss Health Survey" will be used to gain deeper insights into the health issues, socio-economic aspects, and lifestyle patterns of the 1918/1919 birth cohort.

Crisis concerns and childbearing intentions in Europe

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Fertility intentions are shaped by subjective narratives of the future (Lappegård et al., 2022). Although the literature on reproductive decision-making in the context of uncertainty is growing, there is little research to date that assesses different dimensions of uncertainty simultaneously. This study expands previous research by explicitly considering perceived uncertainty clusters consisting of different, intertwined individual crises as implied by the polycrisis framework (Lawrence et al., 2024).

The aim of this study is to further investigate the relationship between fertility intentions and subjective perceptions of global uncertainties in five European countries. Using representative data from the first wave of the Generations and Gender Survey Round II, factor analysis and ordinal logistic regression are employed to (a) identify relevant uncertainty clusters, (b) examine the association between these clusters and fertility planning and (c) further disentangle the relationship between social trust, personality traits and crisis concerns with regard to reproductive decisions in Norway, Sweden, Finland, Estonia and the United Kingdom. The Cognitive-Social Model of fertility intentions (Bachrach and Morgan 2013) provides the main theoretical background for the analysis. The analysis is limited to male and female respondents aged 18 to 45, deliberately including different parities and partnership statuses in order to comprehensively investigate the role of crisis concerns. In addition, respondents who or whose partners are unable to conceive are excluded.

Fertility intentions are measured using four categories to reflect inherent certainties and uncertainties (Ní Bhrolcháin & Beaujouan, 2011). Multi-Group Confirmatory Factor Analysis is applied to examine similarities and differences of crisis perception between countries. Regression results suggest a low relevance of uncertainty clusters for family planning, but emphasize the importance of incorporating personality traits such as risk aversion in studies on fertility in contexts of uncertainty. Disentangling the link between fertility and crisis perception enables adequate political interventions and support measures.

Differential trends in the nucleation of households in India, 1998-2019

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Research purpose: The objective of this paper is to assess differential trends and determinants in the nucleation of households over three decades in India. The present study aims to explore that Indian families are undergoing a transition from a traditional orientation towards familial ties and obligations towards an increasing emphasis on the significance of the conjugal relationship.

Methods and Data: This study used data from the second and fifth rounds of NFHS, which were conducted during 1998-99 and 2019-21, respectively. Descriptive statistics, such as mean, proportion etc., have been used to assess the nuclearization of households across various independent variables.

Findings: Several noteworthy trends from the data show that in urban areas, the mean family size in nuclear families decreased from 4.4 in 1998-99 to 3.4 in 2019-21, while the mean family size in non-nuclear families decreased from 6.5 to 5.6 over the same time period.

Results suggest an increase in the proportion of nuclear families was higher in urban areas in comparison to the rural areas over the given period. In contrast with this increase, the decline in non-nuclear families has been observed in both urban and rural areas. A shift towards nuclear families in both urban and rural settings has been observed. In 1998-99, 92.55% of household heads were male, and 7.45% were female. In 2019-21, the percentages were 83.51% male and 16.49% female. This shows that there has been a notable increase in the share of female-headed nuclear households over the past 20 years.

Conclusion: This study indicates a rise in nuclear households in India, independent of religion and caste, due to urbanization and demographic changes. The increase in female-headed households suggests greater autonomy and potential gender equality. However, the shift to nuclear households heightens elderly vulnerability, necessitating social welfare and community support initiatives.

Borderline Personality Pathology in Young Men from the General Population: Prevalence, Longitudinal Course, and Behavioral Profiles

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Borderline personality disorder (BPD) is a severe mental illness associated with substantial emotional and social impairment, a high suicide risk, and considerable costs for individuals and society. Despite its high clinical and societal relevance, BPD is under-researched in the general male population and from a longitudinal perspective. Better knowledge of the prevalence, developmental patterns, and indicators of young men's risk of stability of the pathology over time are needed to facilitate well-targeted interventions.

We leverage prospective-longitudinal data from the Cohort Study on Substance Use Risk Factors (C-SURF), a largely representative sample of young men in Switzerland ($n \approx 6,000$). Specifically, we use data from the second (2016-2018) and third (2019-2020) follow-up surveys when participants were 25 and 28 years old on average. BPD (McLean-Screening Instrument [MSI-BPD, 10 items]) and several risk-taking behaviors (e.g., substance use, gambling, other-harm) and self-harm (e.g., non-suicidal self-injury [NSSI], suicide attempts) were assessed using self-report measures.

The point prevalence of BPD according to a common MSI-BPD cut-off criterion (i.e., at least seven symptoms) was 4-5%. On the within-person level, the number of BPD symptoms declined with increasing age ($\beta = -0.07$, $p < 0.001$); there was no age-effect on fulfilling the MSI-BPD cut-off. Of those fulfilling the cut-off at the first assessment, 30% still fulfilled it approximately three years later. At the first assessment, BPD was associated with an elevated risk of a variety of high-risk behaviors (e.g., dual-harm [i.e., combined self- and other-harm]: $OR = 18.35$, $95\%CI = 12.10-27.83$; illicit substances use: $OR = 3.06$, $95\%CI = 2.32-4.03$). Furthermore, some behavioral profiles prospectively indicated an increased likelihood of stability versus change in borderline pathology across young adulthood.

Our findings indicate considerable prevalence and intra-individual stability of borderline personality pathology among young men in Switzerland. To identify and support individuals at risk of prolonged psychosocial burden, comprehensive assessments of behavioral profiles may be a promising avenue.

First results of GREATLEAP: A COST-Action network for studying historical health inequalities in European populations

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Social inequalities in health pose persistent and pressing societal challenges. These inequalities that plague our present-day lives have deep historical roots. Currently, the understanding of the causes of these historical health inequalities in populations is hindered by a reliance on inadequate sources, disciplinary boundaries, and a mostly Western (European) focus. The COST-Action ‘The Great Leap. Multidisciplinary approaches to health inequalities, 1800 – 2022’ addresses these challenges by furthering the access to and use of historical individual-level cause of death data across Europe and beyond. Researchers from a wide range of disciplines are jointly creating a multilingual cause of death historical information system covering a large number of European locations and regions. Moreover, a worldwide system to code and classify historical cause of death data is developed, next to best practices on how to use this data by employing cutting-edge analytical tools. In our presentation we will elaborate on these objectives, and present the first results of GREATLEAP: an overview of historical sources and databases with information on the historical causes-of-death of populations, the Historical International Classification of Diseases (ICD10h), comparative research on infant and child mortality in specific European cities (1850-1950), and an overview of how new research questions can be addressed.

Assessing regional mortality disparities across intra- and international borders in Europe: An application of the Earth Mover's Distance

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The study of spatial variation in mortality tends to focus on mortality levels in spatial units such as countries and sub-national regions or on individuals situated within such spatial units. Less focus has been given to identifying and understanding disparities between adjacent regions divided by intra- or international borders. However, focusing on differences between pairs of adjacent regions can help deepen our understanding of factors driving spatial variation in mortality. We demonstrate the potential of such analyses through the application of the Earth Mover's Distance, a measure of statistical distance that quantifies the difference between two distributions and can incorporate multiple dimensions within these distinct distributions. After introducing the method, we show its one-dimensional application, using mortality data for 526 European subregions to examine differences in the distribution of deaths by age across 179 international and 1073 domestic borders. We then empirically show a two-dimensional application of the method focusing on Austria, Czechia, and Slovakia, which takes both age and cause of death into account when comparing differences in the mortality distributions of two bordering regions. Our results show that large mortality differences exist along international borders, especially between countries separated by the former Iron Curtain. However, beyond that, large differences between bordering regions can also occur within countries or along cultural borders, for example, where different languages are spoken. Our innovative approach to quantitatively study these cross-border disparities highlights a new possibility for studying differences in distributions across the field of demography, and our empirical examples highlight the need for continued research to understand how underlying factors create and contribute to mortality differences between regions.

Allergies unmasked: pollen's systemic impact on health

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Pollen allergy is an increasingly prevalent chronic health condition, affecting 20% of the Swiss population. The typical symptoms (sneezing, itchy eyes) are well-known yet often trivialized. Systemic effects on cardiorespiratory health, cognition and sleep are less recognized.

The EPOCHAL study (Effects of Pollen on Cardiorespiratory Health and Allergies) involved 396 adult participants, most with pollen allergies. Participants reported their nasal, ocular and respiratory symptoms on 16 occasions throughout their pollen season. Each participant worked with a study nurse to characterize their blood pressure, cognitive performance (using game-like tests) and sleep (using fitness wristbands). We derived the concentration–response association between pollen from seven allergenic plants (alder, ash, birch, hazel, grasses, mugwort, and ragweed) and all health outcomes. We further determined the relevant exposure time lags. In addition, participants learned their specific allergen sensitizations in a skin prick test.

We found a clear nonlinear positive association between pollen exposure and ocular and nasal symptom severity in pollen-allergic participants: symptom severity increased steeply with initial exposure, but attenuated beyond 80 pollen/m³. There was no evidence of a threshold below which no increase in symptoms occurred. Recent pollen exposure (last ~5 hours) affected symptoms most, but associations lingered for up to 60 hours. High pollen exposures of 400 pollen/m³ were associated with 2.00 mmHg [95% CI: 0.80–3.19] and 1.51 mmHg [95% CI: 0.58–2.45] increases in systolic and diastolic blood pressure. Furthermore, participants experienced, on average, 4.7 minutes [95% CI: 0.9–8.6] less deep sleep and 9.5 minutes [95% CI: 0.5–18.5] more light sleep, indicating lower sleep quality, while overall sleep duration was unaffected. No associations between pollen and cognitive test scores were found.

The results suggest that pollen have previously unrecognized systemic health effects beyond well-known nasal and ocular symptoms and could be used to inform pollen warning systems.

A Combined Cross-Sectional Analysis and Case-Control Study Evaluating Tick-Borne Encephalitis Vaccination Coverage, Disease and Vaccine Effectiveness in Children 0-17 in Switzerland, 2005-2022

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Aim: Tick-borne encephalitis (TBE) is a severe, vaccine-preventable viral infection of the central nervous system. Symptoms are generally milder in children and adolescents than in adults, though severe disease does occur. A better understanding of the disease burden and duration of vaccine-mediated protection is important for vaccination recommendations. Here we aimed to estimate TBE vaccination coverage, disease severity and vaccine effectiveness (VE) among individuals aged 0–17 years in Switzerland.

Methods: Vaccination coverage between 2005 and 2022 was estimated using the Swiss National Vaccination Coverage Survey (SNVCS), a nationwide, repeated cross-sectional study assessing vaccine uptake. Incidence and severity of TBE between 2005 and 2022 were determined using data from the Swiss disease surveillance system and VE was calculated using a case–control analysis, matching TBE cases with SNVCS controls.

Results: Over the study period, vaccination coverage increased substantially, from 4.8% (95% confidence interval (CI): 4.1–5.5%) to 50.1% (95% CI: 48.3–52.0%). Reported clinical symptoms in TBE cases were similar irrespective of age. Neurological involvement was less likely in incompletely (1–2 doses) and completely (≥ 3 doses) vaccinated cases compared with unvaccinated ones. For incomplete vaccination, VE was 66.2% (95% CI: 42.3–80.2), whereas VE for complete vaccination was 90.8% (95% CI: 87.7–96.4). Vaccine effectiveness remained high, 83.9% (95% CI: 69.0–91.7) up to 10 years since last vaccination.

Conclusions: Even children younger than 5 years can experience severe TBE. Incomplete and complete vaccination protect against neurological manifestations of the disease. Complete vaccination offers durable protection up to 10 years against TBE.

Environmental Disasters and Health at Birth: Evidence from Wildfires in Spain

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Climate change is increasing fire-conducive weather conditions worldwide determining increased risks of wildfire exposure. Despite growing research on the impacts of wildfires on health outcomes, studies on birth outcomes, sociodemographic heterogeneities and for the European context are lacking. This study investigates the impact of wildfires on birth outcomes in Spain, a country suffering several public health threats due to climate change. We use Spanish administrative data comprising about 3.5 million live births from 2008 to 2021. We connect this data with precise measures of wildfire exposure based on data provided by the European Forest Fires Information System. We observe a decrease in birth weight and increase in low birth weight with exposure to a wildfire during gestation and the effect to be concentrated in the third trimester. Exploring heterogeneity, we do not observe major differences between sociodemographic groups. The results highlight the need for public health interventions and policies aimed at mitigating the health impacts of wildfires on vulnerable populations, particularly pregnant people.

Biomonitoring in the Swiss Health Study pilot: sources of PFAS exposure

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Background: Per- and polyfluoroalkyl substances (PFAS) are synthetic chemicals known for their water and grease-resistant properties, making them widespread in industrial and consumer products like ski waxes, non-stick cookware, waterproof clothing, firefighting foams, and cosmetics. PFASs are very stable molecules, leading to their accumulation in the environment and the human body. Humans can be exposed through food, drinking water and inhaled dust. Research has linked PFAS exposure to various health issues, including developmental effects, pregnancy complications, obesity, certain cancers, and immune disruption. The objective of this work is to gain insights on the multifaceted sources of PFAS exposure in the Swiss adult population

Methods: The pilot of the Swiss Health Study [SHeS] was conducted in 2020-2021 in the cantons of Bern and Vaud under a mandate from the Federal Office of Public Health (FOPH). We use data from 638 randomly-selected participants, of whom 630 had laboratory measurements for 30 PFASs in serum. We only consider PFASs detected in at least 5 participants, resulting in 14 substances. We use hurdle gamma regression models to jointly estimate the association between covariates and (1) the probability of detection of each PFAS and (2) the quantity of each PFAS when detected. Covariates include socio-demographic information, propensity to consume specific foods, use of cosmetics, ski waxes and water-repellents, information about breastfeeding and professional exposures. We conduct univariable and multivariable analyses, and account for multiple comparisons with penalized regression.

Implications. Understanding and addressing the sources of PFAS exposure is crucial in safeguarding human health and advocating for regulatory measures to mitigate their impact. Results from this study will contribute to the debate on the burden of PFASs in Switzerland.

Ecosystem resilience mitigates temperature impacts on neonatal and infant mortality in India

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Background: India experiences severe climatic shocks including droughts, heat stress, and floods, which are expected to intensify a future warmer climate. In this context a resilient ecosystem can contribute to safeguarding children by providing natural cooling through vegetation, ensuring reliable water sources, and supporting local food production. The present study investigates how ecosystem resilience affects children's health and acts as a protective shield against climatic risks.

Data and Methods: This study employs data on neonatal mortality (NMR) and infant mortality (IMR) were obtained from the National family health survey (NFHS-5) conducted between 2019-2021 and satellite data are used to assess ecosystem resilience and temperature extremes. Univariate and bivariate LISA statistical analysis were employed to examine the spatial association between high temperature, ecosystem resilience, and NMR and IMR. Further, a multivariate cox hazard model was used to estimate mortality risks associated with exposure to high temperatures and non-resilient ecosystems.

Result: The findings show low levels of ecosystem resilience in the northern and western part of India, while the central and southern India exhibit higher levels of resilience. Spatial autoregressive models reveal a significant association between higher temperatures and higher NMR and IMR. Also, the resilience of local ecosystems plays an important role exerting a positive effect on children's health, although we do not find any evidence that the resilience moderates the temperature impacts. The cox-proportional hazard models show elevated risks (HR: 1.002) for both neonatal and infant deaths with non-resilient ecosystems having the highest risks (HR: 1.217 for neonatal deaths and HR: 1.159 for infant deaths).

Conclusion: This study highlights the important role of environmental conditions and ecosystem resilience for child health. To support children's health and achieve SDG-4, it is essential to foster climate and ecosystem resilience and integrate these into maternal and child health policies.

Physical youth-to-parent aggression in adolescence and young adulthood: a population-based cohort study

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Background: Physical youth-to-parent aggression (PYPA) is one of the most understudied forms of family aggression, but it is a behavior well-known to clinicians, child-welfare and juvenile justice workers. Longitudinal studies of PYPA in the general population are rare, however. The current study aims to 1) document the prevalence of PYPA from adolescence to adulthood, 2) examine risk and protective factors associated with PYPA, and 3) understand PYPA in the larger context of family aggression.

Methods: We leverage data from the Zurich Project on the Social Development from Childhood to Adulthood (z-proso, N~1500), a prospective-longitudinal cohort study. At age 7, a population-based sample of first-graders was recruited from schools and participants were subsequently followed to age 24 (assessment in 2022). PYPA in the past 12 months was child-reported at ages 11, 13, 15, 17, 20, and 24. We used prevalence calculations and generalized estimating equations (aim 1), logistic regressions (aim 2), and latent transition analyses (aim 3) to investigate the research questions.

Results: About 1 in 3 youth engaged in PYPA at least once during adolescence and young adulthood. The prevalence of PYPA followed a cubic developmental course, with a peak at age 13. Engaging in PYPA was associated with a series of behavioral and interpersonal risk and protective factors. Those who engaged in PYPA were more likely to experience subsequent family aggression (either PYPA or corporal punishment or both) than those who did not engage in PYPA in adolescence.

Discussion: These preliminary findings suggest that PYPA is common in young people from the general population, occurs in a context of behavioral and interpersonal risk, and is a risk factor for future family aggression."

SHARE, the Survey of Health, Ageing and Retirement in Europe

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The aim of this presentation is to give a brief overview of the Survey on Health, Ageing and Retirement in Europe (SHARE) and the research perspectives it offers to the scientific community.

Created in 2004, SHARE is a multidisciplinary, cross-national panel database that includes detailed microdata on the health, socio-economic status and social and family networks of people aged 50 and over. Covering 28 European countries and Israel, SHARE provides a comprehensive longitudinal dataset that is essential for understanding the implications of aging on individuals and societies.

The SHARE dataset includes a wide range of variables offering rich and diversified research possibilities. Health-related variables include both physical and mental health measures, details on health care use, and biomarkers. Socio-economic data covers aspects such as income, wealth, employment, and pensions. Additionally, SHARE collects information on social and family networks, including intergenerational transfers and social support systems. This multifaceted approach enables researchers to explore complex interactions and causal relationships across different life domains within the aging population.

Moreover, the longitudinal nature of SHARE, together with biographical data collected at certain waves, makes it possible to examine changes over time, track the trajectories of aging individuals and examine the impact of childhood living conditions on living conditions at age 50 and beyond.

And finally, SHARE's harmonized methodology across countries and its integration into an international network of aging studies (www.g2aging.org), including for instance the American Health and Retirement Study (HRS) or the China Health and Retirement Longitudinal Study (CHARLS) facilitate comparative research, offering insight into how different social and political environments influence aging processes.

In conclusion, SHARE is a unique and essential resource for researchers interested in the dynamics of aging populations, providing extensive, high-quality data that support a wide range of academic and policy studies.

Real-world patterns in remote longitudinal study participation: a study of the Swiss Multiple Sclerosis Registry

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Introduction: Remote longitudinal studies are on the rise and have the potential to reduce participation barriers in chronic disease research, yet maintaining long-term retention in these studies remains challenging. Early identification of participants with different patterns of retention offers the opportunity for tailored adaptation of survey requirements to align with their characteristics and preferences. Our study aims to inform future survey designs by assessing baseline predictors of long-term retention in a remote longitudinal study involving people living with multiple sclerosis (pwMS).

Methods: For our analysis, we defined three groups of potential predictors of long-term retention in remote longitudinal studies, namely sociodemographic, health-related, and daily-life variables at baseline. We assessed these baseline variables from the online arm of the Swiss Multiple Sclerosis Registry (SMSR) against measures of long-term retention in the follow-up surveys using multivariable logistic regressions. We extended this analysis by assessing the possible presence of participant subgroups based on long-term retention outcomes through unsupervised clustering analyses. We further explored survey completion measures against survey requirements to contextualize our findings.

Results: Our analysis included data from 1,757 participants who completed a median of 4 (IQR 2-8) follow-up surveys after baseline with a maximum of 13 possible surveys. Survey start year, age, citizenship, MS type, symptom burden and independent driving were significant predictors of long-term retention at baseline. Three clusters of participants emerged, suggesting the presence of subgroups aligned with the significant predictors and their direction of effect. However, these clusters revealed no differences in long-term retention outcomes. Exploratory assessments of follow-up surveys suggest possible trends in increased survey complexity with lower rates of survey completion.

Conclusions: Our findings identified characteristics relevant to long-term retention in remote longitudinal studies, yet they highlight the possible influence of various unexplored factors. Future studies should integrate objective contextual and psychological measures to depict individuals' life and disease stages accurately, and inform survey adaptations accordingly.

Empirical foundations for the development of spiritual care. Results of a representative population survey in the Canton of Zurich

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Background: This study builds on a representative survey conducted in 2023 as part of the URPP “Digital Religion” to investigate attitudes towards healthcare chaplaincy in the resident population in German-speaking Switzerland and Suisse Romande.

Research objectives: In this follow-up study, conducted in Q2 and Q3 2024, we survey the experiences with and expectations towards healthcare chaplaincy in the resident population of the Canton of Zurich. The objective is to support the evidence-based development of clinical spiritual care as a part of holistic, patient-centred healthcare.

Methodology: In a population-representative online survey, 1,000 residents of the Canton of Zurich aged between 18 and 74 are questioned. For a subsample of people with previous experience with clinical spiritual care, 150 to 200 respondents are included. The survey instrument is a standardized questionnaire, supplemented by open response options and qualitative interviews.

Key findings: We expect to present detailed insights into the religious-spiritual beliefs and practices of respondents; their previous experiences with healthcare chaplaincy; their expectations towards spiritual care in the event of serious illness of oneself or a loved one; expectations towards the profile and financing of healthcare chaplaincy, and the influence of the reputation of the Swiss Protestant and Catholic churches on the perception of healthcare chaplaincy.

Results: Typical patterns of attitudes and expectations towards healthcare chaplaincy are identified, quantified, and compared on the basis of denominational and other socio-demographic subgroups, and to religious-spiritual need types that have already demonstrated explanatory power in previous studies (Peng-Keller et al., 2024). This study, which is conducted by an interdisciplinary team of population researchers, social anthropologists and theologians, is of significant interest to the population research community, and in particular in the fields of spiritual care, sociology of religion and public health specialists interested in the development of patient-centred healthcare.

Latest data on vaccine literacy and vaccination behavior of the Swiss adult population

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One of the most effective and important preventive measures in public health are vaccines. They allow the protection of the population against many communicable diseases. Nevertheless, when it comes to vaccination decisions and behavior, the population shows different attitudes, motivation, and knowledge which can result in uncertainty, hesitancy and affect vaccination uptake. This in turn limits the great potential of this population-based protective medical health intervention. Especially after the COVID-19 pandemic, it remains unclear how attitudes, motivation and knowledge, i.e. vaccine literacy, and according behavior of the Swiss population have changed. To effectively implement the National Vaccination Strategy and the associated action plan of the Swiss Confederation, the Swiss Federal Office of Public Health launched a study to assess vaccine literacy and behavior in the adult population in Switzerland.

For this study, a representative sample of 2,500 people living in Switzerland was taken from the sample register of the Swiss Federal Office of Statistics. The survey is conducted between June and August 2024. The online questionnaire includes validated instruments, e.g., the HLS19-VAC to assess vaccine literacy, the 7C Vaccination Readiness Scale to assess further factors related to attitudes, motivation, trust, hesitancy, as well as questions on correlates of these variables.

The results will be presented at the conference, whereby the focus will be on vaccine literacy and behavior of the adult Swiss population. We will discuss differences between specific population groups and present changes in vaccine literacy, readiness and behavior.

Since the pandemic, the topic has received increasing attention and might have changed people's attitudes, motivation, knowledge, and behavior. The survey will give valuable insights on vaccine literacy and behavior as well as on the influencing factors, which are crucial to guide effective future actions and measures to improve the vaccine coverage and public health in Switzerland.

Impact of diet and physical activity on body composition in the general population of the greater Zurich area: cohort study

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Background: Excess weight (overweight and obesity) is increasing globally and causes a high burden of non-communicable diseases, mortality, and costs in populations worldwide. Therapeutic and preventive measures so far were not successful in substantially slowing down this pandemic, and also in Switzerland excess weight and its sequelae still represent one of the major public health threats. The life course approach to health provides a useful and promising frame to address the excess weight topic at a population level, as it links health risk factors with later health outcomes. The present study analysed the association between adult anthropometry and body composition with several lifestyle factors such as diet and physical activity over a period of six years.

Methods: We assessed participants of a running cohort study at the Institute of Evolutionary Medicine (IEM) of the University of Zurich, including both sexes and all adult ages (18+). Exclusion criteria were pregnancy or lactation. Anthropometric measurements and body composition were assessed yearly in the IEM Scan Lab with a laser-based 3D full body scanner, a bioelectric impedance analyser, digital scale, and stadiometer. Food intake, physical activity, and socio-demographic variables were assessed using validated questionnaires. To analysis the longitudinal data mixed effects regression models were used.

Results: Ca 700 participants were assessed between 1-5 times in 6 years of follow-up (2019-2024, no measurements in 2020). Here we analyse the post-COVID-19 data from 2021-2024 (4 years). We present associations between lifestyle risk factors and anthropometric variables and body composition, by sex and age group, corrected for sociodemographic variables.

Conclusion: Our results shall be informative to improve excess weight preventive measures at the population level, especially to improve subgroup-specific preventive approaches. By following up a specific population cohort over time we gain in-depth knowledge about the short-term adult life risk factors influencing health outcomes.

A Longitudinal Study of Adolescent Cannabis Use on Cognitive Performance in Young Adulthood: Associations and Trajectories

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Background: Cannabis use in adolescence and young adulthood has been linked to lower cognitive function in a number of studies, although results are not always consistent. Mainly, the long-term impact and the severity of cognitive impairments associated with high and early cannabis use in community samples are not fully clarified. Therefore, the current study aims to investigate the relationship between self-reported cannabis use between ages 11 and 24 and cognitive functions at age 24.

Methods: Data were drawn from the Zurich Project on the Social Development from Childhood to Adulthood (z-proso), encompassing a sample of 1,482 people. Cannabis use was assessed six times (at ages 11, 13, 15, 17, 20, and 24), using a scale with six categories ranging from never to (almost) daily use. Cognitive performance was assessed at age 24 using the Cambridge Neuropsychological Test Automated Battery (CANTAB), which measured sustained attention, working memory, and declarative memory. Single regressions were conducted without and with covariates (sex, socio-economic background, migration status, education, cocaine use, internalizing symptoms), followed by Helmert contrasts. Additionally, latent class growth analysis (LCGA) and multinomial regressions were conducted to identify and analyze subgroups of cannabis users.

Results: Regression analyses revealed few significant associations between cannabis use and cognitive performance. However, Helmert contrasts across all time points indicated that being in the (almost) daily user group was associated with lower cognitive functions compared to all other consumption groups. Latent class growth analyses (LCGAs) identified four distinct longitudinal classes of cannabis users: non-users, low-increasing users, moderate-increasing users, and high-stable users. These classes did not show significant differences in their cognitive functions at age 24.

Discussion: The results suggest that associations between cannabis use and cognitive functions in the community are nuanced and that highly frequent adolescent users may be at risk for worse cognitive functions in young adulthood.

Interaction effects on health between perceived neighbourhood social cohesion and demographic changes: a longitudinal linked panel and regional data study

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Changes in small-area characteristics may be associated with health. Various theories have been proposed to explain small-area effects on health, including those concerning social capital. The effect of small-area demographic changes on health are very little researched and hardly anything is known about their relationship with social cohesion.

We use longitudinal data from the German Socio-Economic Panel linked to demographic measures at county level. We explore the association between 5-year changes in the proportion of over 65 and of 18-24 years-old and physical and mental health and the moderating effect of perceived neighbourhood social cohesion (SC) using random intercept models. Control variables include education, income, and relevant baseline measures. Included are all participants with a 6-year continuous exposure to their county of residence. The outcomes are physical and mental health components (PCS, MCS) of the SF-12. We included 21,239 persons up to 6 times in 399 counties. 5-year changes in the share of over 65, and of 18-24 and SC are associated to MCS and PCS. Significant interactions between the changes in over 65 and social cohesion are seen for MCS only in rural areas and some interactions are significant for PCS. For MCS there are no interactions between social cohesion and the changes in 18-24. Important interaction effects for PCS: for those exposed to a small decrease in 18-24, an increase in one unit of SC is associated with an increase of 1.71 (95% CI[1.38, 2.03]) PCS units. For those exposed to a large decrease this effect is lowered by 0.88 PCS units.

Exposition to some demographic changes reduce the positive effects of perceived social cohesion on health. The evidence shown by this work need to be further developed by considering smaller spatial scales but open new directions of research to understand the effects of population structure on health.

A pilot study on the effects of resilience, physical activity, and gender on mental health among Malawian adolescents: Foundations for population-level public health interventions

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The prevalence of mental disorders in Malawi is high, affecting nearly one in three individuals. Research from high-income countries indicates that physical exercise and resilience, the capacity to adapt to adversity, can benefit adolescents' mental health. Despite efforts to improve mental health literacy, little is known about the underlying factors affecting mental health among Malawian adolescents. Population research is needed to identify these factors and inform public health interventions.

This pilot study involved 218 interviews with secondary school adolescents in rural and urban Blantyre, Malawi. The questionnaire included demographics, the International Physical Activity Questionnaire (IPAQ) to assess physical activity (PA), the Centre for Epidemiological Studies Depression Scale for Children (CES-DC) to assess mental health, and the Child and Youth Resilience Measure (CYRM-R) to measure resilience.

Over half of the adolescents were at risk of developing depression. Girls were more likely to be at risk for depression compared to boys. Boys showed higher resilience and were more physically active. Adolescents who engaged in more physical activity also tended to have higher resilience. Resilience was linked to better mental health, while physical activity alone was not. Resilience mediated the relationship between gender and mental health, explaining why girls were more likely to experience poorer mental health outcomes.

These findings enhance the understanding of the relationship between gender and mental health among adolescents. Girls are at a higher risk of developing depression, show lower resilience, and are less physically active. Strengthening resilience is key to improving mental health. Public health interventions should focus on building resilience and promoting physical activity, especially for girls. This pilot study provides insights for future population research. It highlights the interplay between gender, resilience, physical activity, and mental health within this population, guiding public health.

Mental health, physical activity, resilience, adolescents, gender differences, Malawi, public health, population research

Cold Season Effects of Ambient Temperature and Psychological Well-being and Health

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Objectives: In recent decades, temperatures have been rising steadily as a result of climate change. Epidemiological evidence suggests that this has a negative effect on health. However, findings in the mental health arena are far from equivocal, which might be due to differential effects of high temperatures on psychological well-being in cold vs. warm seasons. The aim of this study was to investigate to what extent high ambient temperatures in cold seasons might exert positive rather than negative effects on psychological well-being and health.

Methodology: To this end, high-resolution meteorological station data was matched with representative autumn and winter survey data of N=8,017 individuals residing in Switzerland. First, data on ambient temperature was extracted from 156 weather stations. Second, data on stress, loneliness, affect, life satisfaction, and general health was extracted from the Swiss Household Panel. Third, the meteorological and survey data was matched by means of each participant's geographic location and the date on which the survey was conducted (time lags: 30 days, 14 days, 7 days, 0 days).

Results: The analyses revealed that the higher the ambient temperatures, the lower the stress levels (14 days later: $\beta = -0.151$, $p = .033$; 30 days later: $\beta = -0.238$, $p = .018$) and the better the health (7 days later: $\beta = 0.178$, $p = .013$). Moreover, intermediate ambient temperatures were linked with less loneliness (14 days later: $\beta = -0.147$, $p = .033$), greater life satisfaction (7 days later: $\beta = -0.195$, $p = .002$; 14 days later: $\beta = -0.176$, $p = .011$), and better health (same day: $\beta = -0.171$, $p = .001$; 14 days later: $\beta = -0.138$, $p = .041$).

Discussion: Our study showed that, in cold seasons, high and intermediate temperatures exerted positive effects on psychological wellbeing and health. These findings are important in shedding a more nuanced light on the effects of climate change on mental health. Further studies investigating the mechanisms translating warmth/heat into mental health outcomes are warranted.

Mental disorders and becoming a parent: a nationwide register study of young people in Finland

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Background: Fertility rates have declined during the 2010s in many high-income countries, with young people widely postponing having a first child. At the same time, mental disorders increased among young people and became a major cause of work disability the last decade. We therefore examined the associations between broad and specific categories of mental disorders and the likelihood of having a first child among young people, and the role of partnership status in these associations.

Methods: We conducted a Finnish nationwide register-based cohort study including all men and women born in 1980-1995 (n=1,210,662).

Results: Cox proportional hazard models showed that almost any mental disorder was associated with a lower rate of having a first child among men and women, with schizophrenia and intellectual disabilities having the strongest associations. For example, the absolute difference of having a first child by age 39 was remarkably pronounced between the general population and those diagnosed with schizophrenia: 55% versus 6% for men and 68% versus 20% for women. Common mental disorders, like mood disorders, also had strong associations with a rate of having a first child, particularly among men (absolute difference was 57% in general population versus 27% in men with diagnosed mood disorders; 71% versus 47% in women). People with substance use, childhood onset, or anxiety disorders had a higher rate of having a first child by age 25 than people without these diagnoses; however, by age 30-35 these associations became negative. People with mental disorders were also less likely to cohabit, which may account for the identified patterns.

Conclusion: This study shows a profound impact of mental disorder on the rate of becoming a parent among young men and women. These findings imply that well-functioning mental health services are important also from a fertility perspective.

Mental Health Assessment of the Population (MAP) research program in Ukraine (MAP-U) and in Zurich (MAP-Z): the prevalence estimates from the baseline assessment.

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Objectives: To conduct mental health surveillance in adult people living in different parts of Ukraine and among Ukrainian refugees (Canton of Zurich, Switzerland) as an actionable foundation for public mental health and mental health care.

Methods: Mental Health Assessment of the Population (MAP) is a research program including prospective, population-based, digital cohort studies, implemented by a team of Swiss and Ukrainian researchers, and focused on mental health monitoring. The study aims to include 5'220 people from the general population living in 10 oblasts of Ukraine, 1'220 people from Ukraine with refugee status residing in the canton of Zurich, and 1'740 people from the Zurich general population, randomly selected and age-stratified. The primary endpoints are prevalence and incidence of symptoms of posttraumatic stress disorder (measured by PCL-5), depression (measured by PHQ-9), anxiety (GAD-7), and alcohol use disorder (AUDIT). Secondary endpoints include participants' health-related quality of life (measured by the EQ-5D-5L instrument and visual analogue scale (EQ-VAS), experiences of somatic distress syndrome (PHQ-15), and social isolation and social integration. Needs, preferences, barriers, and facilitators for mental health services will also be assessed. The studies will assess mental health and health care needs of the population for two years.

Conclusions: MAP will generate reliable, comparable, and high-quality epidemiological data on mental health. The first results of the prevalence estimate from the baseline assessment will be presented at the conference.

Publishing information

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