natural language processing to automatically code job descriptions to SOC-2010.

Methods We recently released SOCcer 2.0. It improved on the original algorithm by 1) expanding the training data set to include job descriptions from population-based epidemiologic studies and 2) revising the scoring algorithm to account for nonlinearity in the classifiers. However, perfect prediction is not possible because of the lack of gold standard approach on which to train the algorithm and the brevity of the job descriptions provided by participants, which may fit multiple codes. We have adapted SOCcer to be used in the data collection process to allow the study participant to serve as their own coder when completing a web-based occupational questionnaire. SOCcer reads the participants open-ended job title and tasks responses in real time and proposes a short list of best-fitting SOC-2010 codes for each job. The study participant reviews the list and selects the code that best fits their job.

Results In a validation set of 11,943 jobs, SOCcer' highest scoring code had 50% and 63% agreement with a consensus expert-assigned code at the 6- and 3-digit level, respectively. Agreement increased linearly with algorithm score. The expert's code was in the top 3 scoring codes from SOCcer for >70% of the jobs, lending support for providing a short list of codes for the study participants to review. Pilot testing is underway.

Conclusion Automated coding, especially in real time, has the potential to substantially reduce the efforts needed to code jobs in large epidemiologic studies and improve the codes accuracy.

S-186 **THE IMPACT OF JOB LOSS ON SELF-INJURY MORTALITY IN A COHORT OF AUTOWORKERS: APPLICATION OF A NOVEL CAUSAL APPROACH**

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Introduction Recent increases in national rates of suicide and fatal overdose have been linked to a deterioration of economic and social stability. The American auto industry experienced these same pressures beginning in the 1980s with the emergence of a competitive global market.

Objectives Using the United Autoworkers – General Motors cohort as a case study, we examine the impact of employment loss on these self-injury mortality events.

Methods For 29,764 autoworkers employed on or after January 1, 1970, we apply incremental propensity score (IPS) interventions, a novel causal inference approach, to examine how proportional shifts in the odds of leaving active GM employment affect the cumulative incidence of self-injury mortality.

Results Cumulative incidence of self-injury mortality was 0.87% (258 cases) at the observed odds of leaving active GM employment ($\delta = 1$) over a 45-year period. A 10% decrease in the odds of leaving active GM employment ($\delta = 0.9$) results in an estimated 7% drop in self-injury mortality (239 cases) while a 10% increase ($\delta = 1.1$) results in a 19% increase in self-injury mortality (306 cases). We reject the null hypothesis of no incremental effect over the range of effects considered (δ in [0.75, 1.25]; $P = 0.02$).

Conclusion These results suggest that leaving active employment increases the risk of death due to suicide or drug overdose.

S-197 **OCCUPATIONAL BURNOUT: DEFINITION, MEASURE AND PREDICTORS**

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Introduction Despite more than half a century of research on occupational burnout (OB), little is known about its prevalence, etiology, treatment, or prevention. The lack of consensus on its definition and measurement has led to the use of various arbitrary definitions and measures of OB.

Objectives Within the Network on the Coordination and Harmonisation of European Occupational Cohorts (OMEGA-NET), we aimed at 1-assessing the state of the art on OB recognition in the 37 OMEGA-NET-participating countries, 2-elaborating a harmonized consensual definition of OB as a health outcome, 3-assessing the psychometric validity of the most used OB inventories, and 4-identifying the OB risk and protective factors.

Methods The first study was an on-line survey among occupational health specialists. The harmonized consensual definition resulted from the systematic review and semantic analysis of available OB definitions and a Delphi study. The two other studies were systematic reviews.

Results The survey showed that in 14 (38%) countries OB is acknowledged as an occupational disease. The results showed a high variability in OB diagnosis, in assessment of its work-relatedness, and in conditions allowing compensation of patients. The harmonized definition of OB was formulated in accordance with the Systematized Nomenclature of Medicine Clinical Terms and consensually approved by 50 experts from 29 countries. Among five most used tools for OB measurements, only two have a moderate evidence of their psychometric validity, the CBI and OLBI. Regarding the 261 OB predictors examined, we found a moderate evidence for the harmful effects of Job demands predictors n=6) and Negative job attitudes and for the protective effect of Adaptive coping (small effect sizes) and Leisure (small to medium effect sizes).

Conclusions These results will help harmonizing the future research, through the use of the harmonized definition and the most valid measurement tools, and facilitate decision-making and interventions regarding OB.

S-207 **MULTIDIMENSIONAL EMPLOYMENT QUALITY, RETIREMENT TRAJECTORIES AND CARDIOMETABOLIC HEALTH IN LATER LIFE IN THE US**

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Introduction The working lives of Americans have become less stable over the past several decades and older adults may be particularly vulnerable to these changes in employment quality (EQ).

Objective We examined later-life multidimensional EQ and retirement trajectories of older Americans and the potential

consequences worsening EQ may have for cardiometabolic health and health inequities in this population.

Methods Using longitudinal data on employment stability, material rewards, workers' rights, working-time arrangements, unionization, and interpersonal power relations from the Health and Retirement Study, we used principal component analysis to construct an EQ score. Then, we used sequence analysis to identify late-career EQ trajectories (age 50–70 years; N=11,958 respondents), overall and by race, gender, educational attainment, marital status. Finally, we estimated the association between trajectory-membership and post-sequence-analysis-period prevalence of poor cardiometabolic health.

Results We identified ten EQ trajectories; the most prevalent trajectories were Minimally Attached and Wealthy (13.9%) and Good EQ to Good Retirement (13.7%), however, 42% of respondents were classified into suboptimal trajectories. Those in suboptimal trajectories were disproportionately women, Hispanic and/or Black, Indigenous and People of Color, and those with lower educational attainment. Moreover, those in suboptimal trajectories tended to report the worse cardiometabolic health. For example, the prevalence of hypertension was lowest for those in the Wealthy Business Owners trajectory and highest for Workers with Premature Mortality, followed by workers with Fair EQ and Good but Diminishing Wealth in Retirement.

Conclusion EQ is inequitably distributed and may play a role in cardiometabolic health inequities in later life.

S-214　THE WORKING LIVES OF GENERATION Y: APPROACH AND CHALLENGES

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Objective Generation Y has to earn a living in a new world of work in changing labor markets. To date, little is known about the working lives of todays' young adults and how early life factors impact their working lives. The aim of this study is to examine how educational and work factors cluster in young workers and to assess the impact of mental health problems from childhood to young adulthood on the work-life clusters.

Methods Longitudinal data of N=1235 participants of the Tracking Adolescents Individual Life Study (TRAILS), a prospective cohort study from age 11 to 26, was used. To examine the participants' clusters regarding educational attainment, employment status, social benefits, type of contract, and working hours at age 26, latent class analysis was performed. Trajectories of mental health problems measured at ages 11, 13.5, 16, 19 and 26 were identified with latent class growth models. Multinomial logistic regression analyses were used to examine the associations between mental health and work-life clusters.

Results Five clusters were identified: 1) high educated full-time workers (30.6%), 2) medium educated part-time and fulltime workers (21.6%), 3) students and medium educated workers with small jobs (26.0%), 4) fulltime students (15.7%), and 5) social benefit recipients (6.0%). Participants

with high-stable trajectories of internalizing and externalizing problems had an increased risk of receiving social benefits (OR 9.80, 95%CI 4.26–22.5 and OR 13.9, 95%CI 4.15–46.9, respectively).

Conclusion At age 26, five work-life clusters were identified, showing the diversity of the working lives of today's young adults. The results of this study also show the long-term consequences of early mental health problems on the working lives of young adults. During the presentation, conceptual and analytical challenges will be discussed, for example: 'When does employment begin' and 'How can we best capture the new world of work?'

S-215　WORKING LIFE, HEALTH AND WELL-BEING OF PARENTS: A JOINT EFFORT TO UNCOVER HIDDEN TREASURES IN BIRTH COHORTS

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Introduction Birth cohorts collect information on employment and health of parents (especially mothers) before and during pregnancy, at birth, and often after birth. These valuable and under-utilized data are typically collected for measuring their effects on the health of the children but have the potential to address specific domains difficult to assess in traditional occupational epidemiology studies, such as working life in relation to reproductive life and work-family conflicts.

Objectives We examine how birth cohort data could be exploited to study the bidirectional relationship and interactions between parenthood, work, and health in parents themselves, taking a life-course approach.

Methods Using a web-based database of birth cohorts, we summarize information on maternal employment and health conditions and other potentially related variables in cohorts spread throughout Europe. This provides information on what data are available and could be used in future studies, and what is missing if specific questions need to be addressed, exploiting the opportunity to explore work-health associations across heterogenous geographical and social contexts.

Results We highlight the many potentialities provided by birth cohorts and identify gaps that need to be addressed to adopt a life-course approach and investigate topics specific to the peripregnancy period, such as psychosocial aspects. We address the technical difficulties implied by data harmonisation and the ethical challenges related to the repurposing of data, and provide scientific, ecological and economic arguments in favour of improving the value of data already available as a result of a serious investment in human and material resources.

Conclusions There is a hidden treasure in birth cohorts that deserves to be brought out to study the relationships between employment and health among working parents in a time when the boundaries between work and life are getting stretched more than ever before.