Methods We conducted a systematic review on observational studies of metal levels from biological matrices, and dietary and occupational/environmental sources among PD patients and controls. We searched the PubMed/MEDLINE, EMBASE and Cochrane databases up to July 2020. Metal species included manganese, iron, copper, lead, mercury, aluminum, calcium, selenium, zinc, magnesium, cadmium, chromium and nickel, and the outcome was idiopathic PD. We applied an adapted Newcastle-Ottawa Scale (NOS) and a previously established exposure assessment rating to evaluate each individual study. We then performed meta-analyses with random-effects model.

Results 80 case-control studies were included, of which 69 were graded as low or moderate quality. The majority of case-control studies were hospital-based and applied biomonitoring approaches to quantify metal levels after disease diagnosis. Studies on copper, iron, manganese and zinc were most prevalent. Meta-analyses showed no significant PD risk for these metals and heterogeneity among studies was substantial. Furthermore, 5 cohort studies were retained, but the population source, metal exposure and follow-up period were heterogeneous.

Conclusion The level of evidence on metal exposure and PD risk is limited and no consensus can be drawn from the literature. Reverse causality cannot be ruled out by existing biomonitoring studies. Studies assessing metal levels before disease onset are needed to improve our understanding of the role of metals in the etiology of PD.

P-279 RETURN TO WORK AFTER PARENTAL LEAVE: PERSPECTIVE OF BRAZILIAN WOMEN

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Introduction maternity leave is a constitutional right in Brazil, but the payment/benefits is restricted to women who contribute to the social security system. Although women represent half of the labor workforce around the world, they are still mostly responsible for family and child-rearing which compromises the process of return to work after birth.

Objective to understand the return to work after maternity leave from the perspectives of Brazilian working women.

Methods qualitative study with mothers that gave birth and return to work regardless of kind of job. Until now, four women have participated in online interviews following a validated script of open questions. Data analysis has been done simultaneously of data collected through thematic approach and the sample will be delimited by saturation. This research was approved by the Research Ethics Committee of the Federal University of Sao Carlos, Brazil (all ethical concerns have been respected).

Results return to work influenced the continuation of breastfeeding, including home office: ' I was in front of the computer and breastfeeding'. There is a duality when women talk about job and the care with the babies: 'the good thing is that I manage to stay with him all the time [...] and at the same time it also becomes exhausting to stay at home for a long time'. Women report that the work was invaded by the needs of their children causing dissatisfaction and frustration with performance after returning: 'I feel more encouraged to work [...] but my career is over, at least in the pandemic there is no way', especially during pandemic with all day care centers closed.

Conclusion the burden of responsibility in caring for children falls on women impacting performance at work and also breastfeeding.

P-280 METALWORKING FLUIDS AND CANCER INCIDENCE IN THE UAW-GM AUTOWORKERS COHORT

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Introduction Metalworking fluids (MWF) are complex mixtures of oils and chemical additives used to cool and lubricate metal machining operations. Previous studies have reported increased risk of specific cancers associated with MWF exposure.

Objectives This report broadly examines cancer incidence in the United Auto Workers-General Motors (UAW-GM) cohort exposed to MWFs with extended follow-up (through 2015). The outcomes of interest were melanoma, leukemia, non-Hodgkin lymphoma and cancers of the colon, rectum, pancreas, esophagus, stomach, larynx, lung and bronchus, breast, prostate, kidney and renal pelvis, and bladder.

Methods The cohort includes 39,132 workers followed for cancer incidence in Detroit area Surveillance, Epidemiology, and End Results Program (SEER) and Michigan cancer registries, from 1973–2015. Cox models yielded estimates of adjusted hazard ratios (HR) with categorical variables for lagged cumulative exposure to each MWF (straight, soluble, and synthetic).

Results There were 7,809 cancer cases of interest. Over 43 years of follow-up, the incidence of several types of cancers was significantly elevated in relation to at least one type of MWF; exposure–response patterns were consistent with prior reports from this cohort. We found significantly increased incidence of stomach and kidney cancer associated with higher levels of straight fluid exposure and increased rectal and pancreatic cancer with increasing synthetic fluid exposure. Only Non-Hodgkin lymphoma was associated with soluble MWF, with HRs significantly elevated in the highest exposure category at 1.70 (95% Confidence Interval (CI): 1.13–2.54).

Conclusions Our results provide further evidence of associations between MWF exposure and several types of cancer. This study summarizes information on the incidence of the fourteen cancer types with reduced bias from both the healthy worker hire effect and left truncation. However, the HRs presented do not address potential downward bias from the healthy worker survivor effect which may be necessary to correct in future targeted analyses.

P-281 IDENTIFYING RETURN-TO-WORK TRAJECTORIES AMONG BREAST CANCER SURVIVORS USING SEQUENCE ANALYSIS

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