duration of outdoor work for all ISCO-88(COM) occupations that were included with season, duration of measurements and latitude as fixed effects in a mixed effects model. Study and occupation were included as random effects. The dependent variable was log-transformed SED harmonised (doseimeter type and location on the body) and weighted by the occupation exposure probability.

Results Modelled workday solar UVR level showed a monotonic increase with increasing expert rating, β-coefficients were 0.62 SED (95% CI -0.51:1.75) for 1 hour; 0.80 SED (95% CI -0.28:1.88) for 2–5 hours and 1.20 SED (95% CI 0.12:2.28) for >5 hours, compared to 0 hours. An eight-fold ratio between the highest and the lowest exposed occupations was seen. Our JEM estimates have highest exposure among farm-hands, concrete placers and related trades while waiters, wood-processing-plant operators, and several white collar occupations have the lowest exposure.

Conclusion This is the first general population quantitative JEM for occupational solar UVR exposure including personal measurements for investigation of exposure-response relations in epidemiological studies of health effects potentially associated with occupational UVR exposure.

O-021 OCCUPATIONAL EXPOSURE OF HAIRDRESSERS TO AIRBORNE HAZARDOUS CHEMICALS: A SCOPING REVIEW

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Introduction Hairdressers are at increased risk of adverse health effects due to exposure to hazardous chemicals released from hair care products during hairdressing activities. Safety assessments of hair products consider only consumer exposure, however exposure for professional hairdressers might be substantially higher. In this study we aimed to review research data on inhalation exposures of professional hairdressers.

Materials & Methods A systematic search of studies between 1 January 2000 and 30 April 2021 was performed in Medline, Embase, Web of Science and in Cochrane registry, toxicological dossiers of the Scientific Committee on Consumer Safety (SCCS) of the European Commission as well as the German MAK Commission. We included the studies which reported quantitative data on airborne concentrations of chemicals in the hairdresser’s workplace.

Results & Conclusions In total, 23 studies, performed in 14 countries reported air concentrations of chemicals measured in the hair salons by using environmental or personal sampling. The most frequently measured chemicals were formaldehyde (n = 8), ammonia (n = 5), total volatile organic compounds (TVOC) (n = 5), and toluene (n = 4). More than fifty other chemicals including various aromatic and aliphatic organic solvents, hydrogen peroxide, persulfate, and particulate matter were measured in one to three studies. The air concentrations of chemicals were dependent on salon characteristics such as ventilation and the number of customers but also on used products that are often country- or client-specific. Several studies reported the air concentrations of formaldehyde, ammonia, and TVOC which exceeded OEL or guidance values.

This review study revealed that hairdressers are exposed to a wide spectrum of hazardous chemicals, often simultaneously. Therefore, occupational exposure should be taken into account by safety regulations for hair care products.

Occupational epidemiology in unorganised sectors: agriculture, construction, service sectors

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Introduction Nicotine and pesticide exposure in agricultural settings have been linked to the development of chronic respiratory disease in workers. The aim of this study was to determine the prevalence of obstructive lung disease and its relationship to concurrent nicotine and pesticide exposure among small-scale tobacco farmers in Malawi.

Material and Methods A cross-sectional study was conducted enrolling 279 workers in flue-cured tobacco farms in Zomba, Malawi. Health outcomes were assessed using a standardised European Community Respiratory Health Survey II questionnaire. Spirometry testing was conducted during the working day.

Results The average age of participants was 37.7 years with a greater proportion (68%) being male. The prevalence of work-related ocular nasal symptoms, chronic bronchitis, and work-related chest symptoms was 20%, 17%, and 29%, respectively. Airflow limitation measured as FEV1/FVC <70% was found in 8% of workers. Self-reported exposure to pesticide was between 72% (spraying) and 83% (field re-entry after spraying). The prevalence of recent green tobacco sickness (proxy for nicotine exposure) was 26%. Tasks linked to nicotine exposure, such as harvesting and curing, were significantly associated with respiratory symptoms. Work involving pesticide application was associated with an increased risk of respiratory symptoms. Duration of pesticide exposure was also associated with obstructive impairment FEV1/FVC<LLN and FEV1/FVC<70%.

Conclusions This study demonstrated that tobacco farmers in Malawi have a higher prevalence of respiratory symptoms and airflow limitation due to obstructive lung disease when compared to the general population. This could be attributable to nicotine or pesticide exposure in small scale tobacco farming. The implementation of occupational health and safety measures to mitigate these exposures may play an important role in modifying the risk of obstructive lung disease in this population.