

NOCCA - the Nordic Occupational Cancer Study, first phase

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The aim of the study was to investigate cancer risk by occupation in the Nordic countries. The large size of the study enables a specific focus on risk in occupations where a small number of individuals are employed, among women, and of rare cancers.

Individual census information on occupation on 15 million inhabitants of the Nordic countries aged 30 to 65 was collected in 1960, 1970, 1980 and/or 1990. Follow-up was obtained through linkages with national death and cancer registries through 2002-2005; 2.8 million incident cancer cases were identified. Occupational information was categorized into 53 occupational groups and one group of economically inactive persons. Cancer data were grouped into 48 main cancer sites and 27 histological or anatomical subgroups. The observed number of cancer cases in each group defined by country, gender, age, and period, was compared with the expected number calculated for a similarly defined group experiencing the incidence rates of the national populations. Results are presented as standardized incidence ratios (SIRs), defined as the ratio of the observed to the expected number, and 95% confidence intervals.

Among men, a wide variation in risk was observed, from waiters (SIR 1.48) to farmers (SIR 0.85). Among women, SIRs varied between 1.27 in tobacco workers and 0.83 in gardeners. Farmers, gardeners, and teachers were groups showing low-risk profiles for most cancer sites in both genders. Established occupational risk factors were confirmed, such as risk of mesothelioma (due to asbestos exposure) among plumbers, seamen, mechanics, electrical workers, smelting workers, and others, and risk of nasal cancer among wood workers (due to exposure to wood dust). Gradients in risk according to socioeconomic status (SES) were observed, with higher risk for breast cancer in high SES groups and of stomach cancer in lower SES groups.

Cancer risk varies with occupation and socioeconomic status in the Nordic countries. Specific results will be presented and discussed. Linkage with a Nordic job-exposure matrix with the study database will allow investigation of specific etiological hypotheses. The study group calls for international research collaboration in this large and unique data set.