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Research

Work stress and risk of cancer: meta-analysis of 5700 incident cancer events in 116 000 European men and women

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Re: Work stress and risk of cancer: meta-analysis of 5700 incident cancer events in 116 000 European men and women

We read this paper with great interest on the association between job strain (a combination of low job control and high job demands) and cancer. This paper is one of the few prospective occupational studies that have examined the risk of job strain for cancer. The authors concluded, based on the null associations between job strain and overall cancer or four types of cancers (colorectal, lung, prostate, and breast cancers), that “work related psychosocial stress is unlikely to be an important risk factor for these cancers...reducing work stress...is unlikely to have an important impact on cancer burden at a population level.” However, we think the authors should have been more careful in drawing such conclusions due to the following two reasons.

First, this study was limited by exposure misclassification. The exposure, job strain, was measured only one time (baseline) in this study. It is well known that a one-time measure of job strain (versus repeated measures) underestimates associations between job strain and health outcomes [1, 2]. In addition, another study by the same authors [3] using similar cohort data with follow-up periods of 3-9 years indicated a possibility of significant differential exposure misclassification in this study from only using baseline information of job strain. In the study by Nyberg et al [3], 58% of the people with job strain at baseline changed to non-job strain at follow-up, while 11% of the people in the non-job strain category at baseline changed to job strain at follow-up. We think significant exposure misclassification may have occurred in this paper using only one-time exposure information, leading to an underestimation of the real associations between job strain and cancers. Furthermore, the authors included data from three cohorts [Danish Work Environment Cohort Study (DWECS), Permanent Onderzoek Leefsituatie (POLS), and Still

Working] that had incomplete scales of both job control and job demands, which is against the criterion stated in their prior methodological paper [4], i.e. to only use cohort data having at least a complete scale of either job control or job demands. This increases our doubts about the robustness of the results of this paper.

Second, the cancer outcomes in this study were defined as a mix of cancer incidence from registries and cancer mortality cases based on death certificates. The authors did not report the details of the cancer outcomes (cancer incidence or mortality data or mixed data for each type of cancers) in each cohort data set used in this paper. We think that the associations between job strain and cancers in this paper, particularly breast and prostate cancers with low fatality rates may have been biased towards the null. Cancer incidence data are substantially better than cancer mortality data for studying the association between job strain and cancers with low fatality rates (e.g., prostate, bladder, breast cancers) because of a higher chance of both misdiagnoses and the confounding effect of deaths from other causes in cancer mortality cases [5-7]. For example, Veys et al [7] reported that using cancer mortality data, compared to cancer incidence data, significantly underestimated the risk of bladder cancer due to a toxic chemical (beta-naphthylamine) in an occupational cohort. Interestingly, among the three longitudinal studies on job strain and cancer [8-10], only one study [9], using cancer incidence data, reported a moderate risk of breast cancer due to job strain, while the other two negative studies [8, 10] used cancer mortality data or mixed breast cancer incidence and mortality data.

Given the few existing studies, we think that more longitudinal and mechanistic studies on psychosocial working conditions (including job strain) and cancer are warranted.

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