



Scand J Work Environ Health 2009;35(6):479

<https://doi.org/10.5271/sjweh.1351>

Published online: 09 Sep 2009, Issue date: 00 Dec 2009

Author's reply to Coggon commentary on epidemiological investigation of prognosis

by [Detaille SJ](#), [Heerkens YF](#), [Engels JA](#), [van der Gulden JWJ](#), [van Dijk FJH](#)

Affiliation: HAN University of Applied Sciences, Verlengde Groenestraat 75, PO Box 6960 GL Nijmegen, the Netherlands. sarah.detaille@han.nl

Refers to the following texts of the Journal: [2009;35\(4\):282-283](#)
[2009;35\(4\):261-281](#)

The following article refers to this text: [2013;39\(1\):5-26](#)

Key terms: [author's reply](#); [commentary](#); [epidemiological investigation](#); [letter to the editor](#); [prognosis](#)

This article in PubMed: www.ncbi.nlm.nih.gov/pubmed/19806272



This work is licensed under a [Creative Commons Attribution 4.0 International License](http://creativecommons.org/licenses/by/4.0/).

Author's reply to Coggon commentary on epidemiological investigation of prognosis

We recently presented the results of a systematic review on common prognostic factors for work disability in employees with a chronic somatic disease (1). In this review, we used the results of prospective and retrospective studies, preferably based on a multivariate analysis. We would like to thank Dr Coggon (2) for his extensive comment on the methodology used in our review.

One central point in Dr Coggon's comment is that aetiological research aims to estimate the causal impact of risk factors, but that – in prognostic research – “causation and confounding are irrelevant”. In his opinion, “it does not matter why a [prognostic] risk factor is related to an outcome”. Dr Coggon argues that any factor that shows a strong association with the outcome is relevant as it can be used in risk modeling and to recognize workers at risk in order to select them for preventive interventions. Non-causal factors that show a strong association might be more important than causal factors that show only little difference in the probability that the outcome will occur.

We agree that it is possible, at least in theory, to use non-causal factors associated with work disability or another outcome for early recognition of risk groups. But there might be serious problems for the reader of a scientific article who wants to work in an evidence-based manner, since non-causal factors might be only relevant in a specific country or industry. For example, suppose that studies from Silicon Valley consequently show that employees who wear T-shirts at work are more at risk of repetitive strain injuries than those who wear ties. Then, T-shirts might be a strong sign of risk in the American Information Communication Technology (ICT) industry in that region. However, it is doubtful whether this factor is relevant for all American industries and regions, or for workers in Japan and other countries where the clothing habits are more formal. So, it is relevant to know that wearing T-shirts is not a real cause of repetitive strain injuries, but that a non-causal association occurs in the specific setting of Silicon Valley where many ICT workers dress informally, although this may not be appropriate for their colleagues in the sales department.

It is, therefore, indeed relevant to pay attention to causation and confounding in reviews on common prognostic factors for work-related outcomes to preclude misinterpretation and stimulate appropriate application of study results in practice. Non-causal factors might be relevant, but only when they are “common” in the

sense that they are meaningful in most industries and countries. However, that is not always the case.

Others agree with our approach. Several articles on the quality of reporting observational longitudinal research have reported the control of confounding as a quality criterion for observational longitudinal research (3–6). The Dutch Cochrane Centre of Cochrane Collaboration, which produces and disseminates systematic reviews of healthcare interventions, also supports this method (www.cochrane.org/docs/descrip.htm). Confounding can result in under- or overestimation of the association between a prognostic risk factor and the outcome. It can even change the direction of the observed effect, resulting in a harmful prognostic factor appearing to be protective or vice versa. Not controlling for confounders in prognostic studies can be misleading for the user of the study who is required to apply meaningful study results in practice.

References

1. Detaille SI, Heerkens YF, Engels JA, van der Gulden JWJ, van Dijk FJH. Common prognostic factors of work disability among employees with a chronic somatic disease: a systematic review of cohort studies [review]. *Scand J Work Environ Health*. 2009;35(4):261–81.
2. Coggon D. Epidemiological investigation of prognosis. *Scand J Work Environ Health*. 2009;35(4):282–3.
3. Altman DG. Systematic reviews of evaluations of prognostic variables. *BMJ*. 2001;323(7306):224–8.
4. Katz, M. H. Multivariable analysis: a primer for readers of medical research. *Ann Intern Med*. 2003;138:644–50.
5. Hayden JA, Côté P, Bombardier C. Evaluation of the quality of prognosis studies in systematic reviews. *Ann Intern Med*. 2006;144(6):427–37.
6. Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP, et al. The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *PLoS Med*. 2007;4(10):e296.

Sarah I Detaille, MA,¹ Yvonne F Heerkens, PhD, Josephine A Engels, PhD, Joost WJ van der Gulden, PhD, Frank JH van Dijk, PhD

¹ HAN University of Applied Sciences, Verlengde Groenestraat 75, PO Box 6960 GL Nijmegen, the Netherlands. [E-mail: sarah.detaille@han.nl]