

Literature Critique Criteria for Cohort studies-tabular form

Criteria	Green	Yellow	Red	Comments
Exposure	Directly observed; quantitative (ordinal or continuous) measurements of work activities, duration, and environment; clear definition of work activity distinguished from usual activities of daily living	Self-report with structured interview or validated questionnaire using a quantitative scale; qualitative description of exposure in terms of work activity and duration (e.g. “holding in position”); binary (yes/no) exposures reported; clear separation of work activity and activities of daily living	Job titles only; lack of description of scale or method of exposure measurement; self-report with no quantitative scale; work exposures are not differentiated from activities of daily living	Self-report may overstate actual job activity; use of job titles dilutes measure of exposure and may bias results toward null value; ordinal or continuous measurement (hours, pounds, concentrations) allows dose-response estimates to be made
Outcome	Assessed by examiner using history and physical exam, with ancillary diagnostic tests when appropriate	Symptom patterns reported which are generally recognized as sensitive and specific for the condition	Symptoms not clearly diagnostic of the condition, but suggestive of regional pain	Outcome definition requiring ancillary tests improve specificity, but may slant the cases toward more advanced or severe disease; when specificity of diagnosis is weakened, the results tend to be biased towards the null value
Inclusion/exclusion criteria	Clear statement of who was eligible for inclusion into the study, how the participants were recruited, and which population is to be represented	Not completely clear how the study sample was selected, but enough information is provided to permit the reader to make reasonable inferences	Lack of clarity about what was required for entry into study, and what population of workers is to be represented	If workers just beginning on the job are excluded in favor of workers with a minimum time on the job, this may slant the sample towards workers who are better able to tolerate the

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				work exposure and miss early attrition from work
Participation rates	Clear reporting of the number of eligible participants, the numbers who did participate, the numbers of refusals, and the reasons for refusal	Reporting of participation rates, with refusals to participate, and at least some descriptive (demographic) information on those who refuse participation	Participation rates are lacking	Participants in a study may differ from non-participants, especially if participation is time-consuming, requires time outside work, or is otherwise inconvenient
Confounders	Generally recognized confounders (age, smoking, comorbid conditions, BMI, activities outside work, wide array of psychosocial factors); both crude and adjusted estimates of effect are reported	Some, but not all important confounders are measured and adjusted for; psychosocial factors are sparsely described	Control of confounders not reported or discussed	Psychosocial factors include many variables that make the study more interpretable; these include work pace, work stress, organization, worker autonomy, etc. CAUTION: Not all psychosocial factors are confounders; if high physical demand jobs directly cause stress, then stress is an intermediate in the development of the condition of interest and is <i>not</i> a confounder.

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Blinding of outcome assessment	Clearly reported that the assessor of outcome was unaware of the exposure status of the participant (e.g., assessor has no access to exposure information)	Blinding is possible, but not clearly stated (e.g., examiner may have had access to medical chart or other possible source of exposure information)	No mention of or attempt at blinding	In some studies the participant is the assessor of outcome and cannot be blinded
Blinding of participants	Participants are clearly not told the study hypothesis, or are participating in a general health survey (or periodic job health screening)	Participants may be aware that they are part of a study of work and health, but their participation in the study is unlikely to be influenced by their interests in the study hypothesis	Participants are aware of the exposure-outcome relationships under study, and their participation may be influenced by their interests in the study hypothesis	If the study hypothesis is known, workers with possible work-related symptoms may be more likely to participate (if they are concerned with their health) or less likely to participate (if they fear forced retirement or transfer to lower-paying or less desirable jobs)
Sponsorship and competing interests	Funding source, relationships of authors to sponsor, and competing interests clearly declared, with no competing interests	Competing interests may be present, but are clearly declared	Competing interests may be likely, but no declaration of funding source or relationships to sponsors is declared	For many observational studies (unlike clinical trials), commercial interests are not likely to create conflicts of interest

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Accounting for participants	Both comparison groups are fully accounted for, with flow diagrams to show attrition during stages of the study, reasons for attrition clearly stated	Some attempt is made to report participation and attrition rates, but there may be differences in attrition between groups and some lack of clarity about where or why attrition occurred	Attrition and participation are vaguely described or not discussed	May be critical to understanding effects of exposure, if development of symptoms led to withdrawal from workforce
Reporting of precision of main results	The principal outcome of interest is reported in terms of the strength of the association, together with a measure of statistical uncertainty (e.g., 95% confidence intervals which exclude the null value) after control of confounders	Strength of association is reported but statistical uncertainty is given as a p value rather than a confidence interval	No association is reported between exposure and outcome	Strength is a critical consideration in causal relationships between exposure and outcome
Biological plausibility	Exposure is known from many other sources to be related to a physiological variable (e.g., airway resistance, carpal tunnel pressure) which is directly relevant to the	Exposure has been shown in other sources to be related to a physiological variable (e.g., airway resistance, carpal tunnel pressure) which is directly relevant to the	Exposure has not been shown to be related to physiological variables involved in the pathophysiology of disease, or is implausible as a factor involved in disease	This is dependent on the state of knowledge in separate but related areas of research; dose-response relationship need not be linear or monotonic increasing

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	pathophysiology of disease; dose-response data are reported and follow a plausible physiologic pattern	pathophysiology of disease	development; dose-response pattern has an illogical pattern	
Statistical power	The methods for determining sample size are stated in terms of the effect size sought, the Type I error, and the Type II error; the sample size is sufficient to detect the effect size	Mention is made of the sample size, but there is some lack of clarity about how the sample size was determined; there may be enough information (numbers per group and variances) to allow the reader to estimate the power	No mention is made of sample size; there is insufficient information to allow the reader to estimate the minimum effect size that could be detected with the numbers available	Critical to the interpretation of “no significant effect” in the results; need to know if enough participants were recruited and retained to detect a group difference
Statistical assumptions	When logistic regression models assume linearity with the link (logit) function, there is an attempt to check this assumption with indicator variables, or with additional terms in the model to check the assumption that there is a monotonic increasing relationship between exposure and outcome	Logistic regression is used without checking the linearity assumption	N/A	Generalized linear models assume that the lowest level of risk occurs at the lowest level of exposure; if some level of exposure is beneficial and an excess is harmful, this relationship may be obscured if this assumption is not examined; it is likely that some exposures (physical activity with the upper extremity) may follow this pattern
Statistical analysis	The method is optimally appropriate to the problem	The method is a reasonable analysis of the	The method is inappropriate to the data	When several ordered levels of a variable are

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	analyzed and uses all the available data	data, but not optimal		measured, chi square for trend may detect associations that are obscured if Pearson chi square is used; if logistic regression models attempt to fit too many terms (fewer than at least five events per variable), the model will be poorly specified

CS/LBP 2013