

## Article Critique: Selected questions on biomechanical exposures for surveillance of upper-limb work-related musculoskeletal disorders

While the title is appropriate, and addresses the nature of the study, it could have been said more simply and accurately as “Determinants of biomechanical exposure for use in preventing upper-limb work related disorders”. The title misses the aspect of identification of those factors which could be prioritized in surveys and surveillance. The synopsis, however provides a summary of this purpose, method and a brief review of the success of the results as 27 of the 36 measures used were found to be more useful factors than the others after multiple sourced data collection and analysis.

The article fulfills an identified need, to determine the best ways to determine risks of biomechanical exposure at work through a regressive analysis of variables used in surveys. The literature review was not clearly delineated, but rather divided into concepts in the Introduction as well as the Discussion to support the methods and the objectives. Additional relevance of the use of survey questions as a tool would have supported the excellent summary of recent survey instrument development. The article addresses a potential refinement in the use of survey instruments to determine biomechanical work exposure which might pose specific risks to upper limb muscular-skeletal disorders. This can refine processes intended to prevent such disorders by identifying workers and work areas which pose a risk, particularly in industrialized nations. The methodology included analysis of data based on a survey of a specific French working population. This data was collected through both a self-reported survey as well as a physical exam by medical doctors specifically trained to conduct the data collection using standardized instruments. The variables were analyzed by using a principal component analysis which translated the variables and results into coordinated data. The independent variable was the presence of upper limb worker musculoskeletal disorder as determined through both self-reported measures and medical exam. The dependent variables were those summarized variables determined by the content analysis of the PCA.

While the study is reproducible, certain limitations of the sample limit the external validity. Further, the sample used only French workers. It might be important to test for cross-cultural application. Further, as populations change with time, as do work processes, it is likely necessary to do an updated study to determine if the results remain relevant. One issue with regard to internal validity is that while the results appear quantitative, however the SALTSA and PCA are ultimately attempts to measure qualitative measures. Efforts were, however, made to ensure that there was consistency in the data collection not only by training the medical doctors to collect it but also in the use of recognized and standardized instruments. An additional enhancement of internal validity was the use of multiple data sources to verify and confirm exposure factors strengthened the evidence used to determine results.

The results have some potential limitations described by the researchers in terms of the undersampling of women and oversampling of manual workers which can be corrected with replicative studies. The results and identification of a subset which more accurately describes potential risks with regard to work tasks, biomechanical exposure and risk of musculoskeletal injury is useful to physical therapy work.

Based on this article, it is clear that a more refined approach can be taken with future physical therapy practice and the factors to be surveyed in a patient can be reduced. Integration of the 27 identified factors in a survey instrument may be a good basis for screening and taking corrective or preventative action.

## Reference List

Descatha, Alexis, Yves Roquelaure, Bradley Evanoff, et al. "Selected questions on biomechanical exposures for surveillance of upper-limb work-related musculoskeletal disorders." *International archives of occupational and environmental health* 81, no. 1 2007; 1-8.