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A method for Effect Modifier Assessment in ergonomic intervention research – The EMA method

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Introduction:

Ergonomic intervention research includes studies in which researchers arrange (or follow) changes in working conditions to determine the effects in risk factors and/or health. Often this research takes place at workplaces and not in a controlled environment of a laboratory. The effects may thus be due to other factors in addition to the investigated intervention – i.e. due to effect modifiers. Such effect modifiers need to be identified and assessed in terms of potential impact on the investigated outcome before proper inference can be drawn. A preliminary review of the literature revealed lack of or poor consideration of effect modifiers in ergonomic intervention research. We present a method that has been developed over the course of several years parallel to intervention studies in healthcare.

Material and methods:

The EMA method is a type of group interview including 3-6 employees representing the occupational groups in the investigated organization. With reference to the investigated period they are asked to recall important changes/events in and around the ward; 1) in general, 2) in work processes and equipment and 3) regarding their work environment. In each step the participants write their individual answer on post-it notes. The answers are then discussed in plenum, one at a time, and the post-it note is placed on a timeline. At the end this illustrates the sequence of significant events.

All identified events are assessed for being caused by either the investigated intervention(s) or other causes (“the effect modifiers”) and their impact on the work environment. Following the workshop, events are entered into a database and reassessed by triangulation based on scientific evidence, researcher knowledge, reading the transcribed audio recorded workshop and other local sources.

Conclusion:

The EMA method seems to offer a feasible procedure to obtain significant knowledge on potential effect modifiers in ergonomic intervention research. However, further development and validation is suggested.