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Effect modifiers in intervention research at hospitals in three Nordic countries

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Introduction:

The impact of ergonomic interventions may be offset by other changes at the work place, primarily rationalizations. These have previously been shown to imply a dominant negative effect on health and risk factors, thus causing effect modification (Westgaard & Winkel 2011). The present paper aims to present assessment of potential effect modifiers in intervention studies at hospital wards in Denmark, Iceland and Sweden.

Material and methods:

The effect modifiers were assessed by a newly developed method (the EMA method; Edwards & Winkel 2016). It is a type of group interview including 3-6 participants representing all occupational groups in the investigated organization. The group is asked to write down significant changes at the workplace during the investigated period. The method also includes a semi-qualitative assessment of the potential Work Environment (WE) impact of each modifier. It aims to capture both the individual and collective account of all significant events that may have caused a significant impact in relation to the specific aim of the investigated intervention. Thirteen hospital wards went through interventions based on either the lean tool VSM (Value Stream Mapping) (6 wards) or the ErgoVSM method (Jarebrant et al, 2010) where additional focus is on ergonomic issues (7 wards).

Results:

In total 120 interventions were implemented. However, 322 significant modifiers were assessed to have occurred during the intervention period. Of these, 120 were assessed to imply impaired WE, 166 a positive impact, 33 no impact and 3 were not assessable.

The number of significant modifier events varied between wards from 8-48, while the number of implemented interventions varied from 0-28. The semi-qualitative assessments suggested a major impact on WE due to modifiers. At seven wards the dominating impact of the modifiers was estimated to improve WE; at two wards the modifiers were estimated mainly to impair WE while four wards showed a mixture of modifiers, some estimated to improve and other to impair WE.

Conclusion:

Numerous effect modifiers occurred parallel to the investigated interventions. This jeopardizes any inference regarding impact of the investigated interventions on WE. The study thereby highlights the significance of considering effect modifiers in ergonomic intervention research.