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Al-Qaisi SK, El Tannir A, Younan LA, and Kaddoum RN. An ergonomic assessment of using laterally-tilting operating room tables and friction reducing devices for patient lateral transfers. *Applied Ergonomics*. 2020; 87:103122

<https://doi.org/10.1016/j.apergo.2020.103122>

Abstract: Patient lateral transfers between two adjacent surfaces pose high musculoskeletal disorder risks for nurses and patient handlers. The purpose of this research was to examine the ergonomic benefits of utilizing the laterally-tilting function of operating room (OR) tables during such transfers - along with different friction-reducing devices (FRD). This method allows the patient to slide down to the adjacent surface as one nurse guides the transfer and another controls the OR table angle with a remote control. Sixteen nursing students and sixteen college students were recruited to act as nurses and patients, respectively. Two OR table angles were examined: flat and tilted. Three FRD conditions were considered: a standard blanket sheet, a plastic bag, and a slide board. Electromyography (EMG) activities were measured bilaterally from the posterior deltoids, upper trapezii, latissimus dorsi, and lumbar erector spinae muscles. The Borg-CR10 scale was used for participants to rate their perceived physical exertions. The efficiency of each method was measured

using a stopwatch. Results showed that the tilted table technique completely replaced the physical efforts that would have been exerted by the pushing-nurse, in that muscle activation did not increase in the pulling-nurse. On the contrary, EMG activities of the pulling-nurse for most of the muscles significantly decreased ($p < 0.05$). The subjective Borg-ratings also favored the tilted table with significantly lower ratings. However, the tilted table required on average 7.22 s more than the flat table to complete the transfer ($p < 0.05$). The slide board and plastic bag were associated with significantly lower Borg-ratings and EMG activities for most muscles than blanket sheet, but they both were not significantly different from each other. However, they each required approximately 5 s more than the blanket sheet method to complete the patient transfer ($p < 0.05$). By switching from flat + blanket sheet to tilted + slide board, EMG activities in all muscles decreased in the range of 18.4-72.3%, and Borg-ratings decreased from about 4 (somewhat difficult) to 1 (very light). The findings of this study propose simple, readily available ergonomic interventions for performing patient lateral transfers that can have significant implications for nurses' wellbeing and efficiency.

Anand P, Roope LSJ, Culyer AJ, and Smith R. Disability and multidimensional quality of life: a capability approach to health status assessment. *Health Economics*. 2020; 29(7):748-765.

<https://doi.org/10.1002/hec.4017> [open access]

Abstract: This paper offers an approach to assessing quality of life, based on Sen's (1985) theory, which it uses to understand loss in quality of life due to mobility impairment. Specifically, it provides a novel theoretical analysis that is able to account for the possibility that some functionings may increase when a person's capabilities decrease, if substitution effects are large enough. We then develop new data consistent with our theoretical framework that permits comparison of quality of life between those with a disability (mobility impairment) and those without. Empirical results show that mobility impairment has widespread rather than concentrated impacts on capabilities and is associated with high psychological costs. We also find evidence that a small number of functionings are higher for those with a disability, as our theory allows. The paper concludes by

discussing possible implications for policy and health assessment methods

Arif AA, Paul R, Delmelle E, Owusu C, and Adeyemi O. Estimating the prevalence and spatial clusters of coal workers' pneumoconiosis cases using medicare claims data, 2011-2014. American Journal of Industrial Medicine. 2020; 63(6):478-483. <https://doi.org/10.1002/ajim.23104>

Abstract: Background: Workers employed in the coal mining sector are at increased risk of respiratory diseases, including coal workers' pneumoconiosis (CWP). We investigated the prevalence of CWP and its association with sociodemographic factors among Medicare beneficiaries. Methods: We used 5% Medicare Limited Data Set claims data from 2011 to 2014 to select Medicare beneficiaries with a diagnosis of ICD-9-CM 500 (CWP). We aggregated the data by county and limited our analysis to seven contiguous states: Illinois, Indiana, Kentucky, Ohio, Pennsylvania, Virginia, and West Virginia. We estimated county-level prevalence rates using total Medicare beneficiaries and miners as denominators and performed spatial hotspot analysis. We used negative binomial regression analysis to determine the association of county-wise sociodemographic factors with CWP. Results: There was significant spatial clustering of CWP cases in Kentucky, Virginia, and West Virginia. Spatial clusters of 210 and 605 CWP cases representing an estimated 4200 to 12 100 cases of Medicare beneficiaries with CWP were identified in the three states. Counties with higher poverty levels had a significantly elevated rate of CWP (adjusted rate ratios [RR]: 1.15; 95% CI, 1.12-1.18). There was a small but significant association of CWP with the county-wise catchment area. Rurality was associated with a more than three-fold elevated rate of CWP in the unadjusted analysis (RR: 3.28, 95% CI, 2.22-4.84). However, the rate declined to 1.45 (95% CI, 1.04-2.01) after adjusting for other factors in the analysis. Conclusions: We found evidence of significant spatial clustering of CWP among Medicare beneficiaries living in the seven states of the USA.

Bosman LC, Twisk JWR, Geraedts AS, and Heymans MW. Effect of partial sick leave on sick leave duration in employees with musculoskeletal disorders. Journal of Occupational

Rehabilitation. 2020; 30(2):203-210.

<https://doi.org/10.1007/s10926-019-09864-z> [open access]

Abstract: Objective This study determined if partial sick leave was associated with a shorter duration of sick leave due to musculoskeletal disorders (MSD) based on routinely collected health data in Dutch sick-listed employees. Furthermore, the effect of timing of partial sick leave on sick leave duration was determined. Methods This cohort study consisted of 771 employees with partial sick leave and 198 employees with full-time sick leave who participated in an occupational health check, and had sick leave due to MSD for minimally 4 weeks and were diagnosed by an occupational physician. Multivariable linear regression models were performed to determine the effects of partial sick leave (unadjusted and adjusted for confounders and MSD diagnosis) and Kaplan-Meier curves were presented for visualization of return to work for different timings of starting partial sick leave. Furthermore, linear regression analysis were done in subsets of employees with different minimal durations of sick leave to estimate the effects of timing of partial sick leave. Results Initial results suggest that partial sick leave was associated with longer sick leave duration, also when adjusted for confounders and sick leave diagnosis. Secondary results which accounted for the timing of partial sick leave suggest that partial sick leave had no effect on the duration of sick leave. Conclusion Partial sick leave does not influence MSD sick leave duration in this study when accounting for the timing of partial sick leave

Colim A, Sousa N, Carneiro P, Costa N, Arezes P, and Cardoso A. Ergonomic intervention on a packing workstation with robotic aid: case study at a furniture manufacturing industry. Work. 2020; 66(1):229-237.

<https://doi.org/10.3233/WOR-203144>

Abstract: BACKGROUND: Several risk factors among packing lines workers can lead to Work-related Musculoskeletal Disorders (WRMSD) occurrence. Foreseeing WRMSD prevention and productivity increase, some furniture manufacturing industries have been investing in the adoption of robotic solutions. In this field, ergonomics plays an important role to verify if automation implementation has been successful. OBJECTIVE: This study aims to address the general impact and effectiveness from an ergonomics

point of view of the implementation of a robotic aid in a packing workstation. **METHODS:** The Nordic Musculoskeletal Questionnaire (NMQ) was applied to 14 workers of semi-automated packing lines. Some additional questions about occupational conditions were included. In order to assess the ergonomic impact of the robotic aid, Rapid Upper Limb Assessment (RULA) was also applied by trained ergonomists, by analyzing the considered packing workstations before and after the adoption of the robotic aid proposed solution. **RESULTS:** The results showed that trunk torsion was the most highlighted WRMSD risk factor by all workers, associating it with the lumbar pain. The obtained RULA scores demonstrated that the adoption of a robotic aid eliminated this risk factor and, consequently, reduced the corresponding WRMSD risk. **CONCLUSIONS:** The adoption of robotic aids can be instrumental in reducing WRMSD risk in furniture manufacturing industries. Ergonomic studies with workers' participatory approaches seem to be an appropriate strategy to enable the validation and development of industrial robotic solutions

Croteau A. Occupational lifting and adverse pregnancy outcome: a systematic review and meta-analysis. Occupational and Environmental Medicine. 2020; 77(7):496-505.

<https://doi.org/10.1136/oemed-2019-106334>

Abstract: This systematic review was conducted to help clarify the effect of lifting at work on pregnancy outcome, by focusing on specific exposure categories. A search in Medline and Embase identified 51 articles reporting association of spontaneous abortion (SA), preterm delivery (PTD) or small-for-gestational-age (SGA) infant with exposure to occupational lifting. A global validity score was assigned to each study and six potential sources of bias were considered in sensitivity analyses. For each exposure-outcome combination, a summary risk estimate (RE) was obtained from all studies and from a subset of studies with high validity score, this latter summary RE was selected as a final result. Statistical heterogeneity was measured with I² and Q tests and the possibility of a publication bias was also assessed. For each meta-analysis, the strength of evidence was established from explicit criteria. Heavy (or =10 kg) loads often (or =10x/day) lifted were associated with increased risks of SA (summary RE=1.31, 95% CI 1.17 to 1.47) and PTD (summary RE=1.24, 95% CI 1.07 to 1.43), with good strength of evidence. No association was

identified with SGA, nor with lower exposure levels and SA or PTD. These results are reassuring for lower levels of exposure; however, observed associations can guide health professionals' recommendations aimed at the prevention of SA and PTD for pregnant women who frequently lift (or =10x/day) heavy (or =10 kg) loads at work. Résumé.

Hughes KD and Silver WA. Beyond time-binds: rethinking work–family dynamics for a mobile world. Human Relations. 2020; 73(7):924-952.

<https://doi.org/10.1177/0018726719846264>

Husmann A, Escorpizo R, and Finger ME. Examining work-related functioning in a physical therapy outpatient clinic: validity and reliability of the work rehabilitation questionnaire (WORQ). Journal of Occupational Rehabilitation. 2020; 30(2):156-166.

<https://doi.org/10.1007/s10926-019-09857-y> [open access]

Abstract: Purpose Musculoskeletal disorders (MSDs) are often associated with long-term sick leave, productivity loss, and reduced work functioning. However, measures that assess work-related functioning are sparse. Objective To assess the psychometric properties of the Work Rehabilitation Questionnaire (WORQ)-German version in patients with MSDs in an outpatient physical therapy practice. Methods Psychometric study including patients with MSDs with restricted work participation. Data was collected in a single physical therapy outpatient clinic. For construct validity, we developed a priori hypotheses on the correlation between the functioning part of WORQ (40 items) and other questionnaires with similar concepts. For test-retest reliability, WORQ was administered twice, 7 days apart. We examined internal consistency (Cronbach's Alpha) and Minimal Detectable Change (MDC). Feasibility of WORQ was examined using feedback from patients and physical therapists. Results There were 51 study participants. Test-retest of WORQ sum score was 0.80 ($p < 0.01$) (Spearman's rho). Internal consistency was 0.94 and MDC established at 9.2%. WORQ correlated with general health ($r = -0.49$), with HADS ($r = 0.55$), and with quality of life (WHOQOL) ($r = -0.47$). WORQ had the highest correlation with WHODAS 2.0 ($r = 0.81$). Patients rated WORQ as easy to answer and meaningful to

their experience. Conclusions When evaluating self-reported work-related functioning, the WORQ-German version was demonstrated to be a valid, reliable, and easy to administer questionnaire for our sample of patients with MSDs in an outpatient PT clinic.

Iles R, Sheehan L, Munk K, and Gosling C. Development and pilot assessment of the PACE tool: helping case managers identify and respond to risk factors in workers' compensation case management. Journal of Occupational Rehabilitation. 2020; 30(2):167-182.

<https://doi.org/10.1007/s10926-019-09858-x> [open access]

Abstract: Purpose The aim was to develop a tool to be applied by workers' compensation case managers to guide intervention and avoid delayed return to work. Methods The Plan of Action for a Case (PACE) tool was developed based on a review of existing literature, focus groups with case managers and analysis of existing claims data. Combined with analysis of existing case manager practice, these sources were used to determine key constructs for inclusion in the tool to be aligned with the demands of case manager workload. Mapping of existing interventions was used to match risk identified by the tool with appropriate intervention. Results The final PACE tool consisted of 41 questions divided into Ready (worker), Set (employer) and Go (treating practitioner) categories. Questions in the tool were linked to appropriate case manager actions. Data collection was completed by case managers for 524 claims within the first 2 weeks of the claim being accepted. The most commonly identified risks for delayed RTW included both worker and employer expectations of RTW, as well as certification of capacity. Factor analysis identified two factors operating across the tool categories. Case managers reported benefits in using the tool, but reported it also increased their workload. Conclusions The PACE tool is a unique example of the implementation of risk identification in case management practice. It demonstrates that case managers are ideally placed to collect information to identify risk of delayed RTW. Future work will establish the impact of case-manager led intervention based on identified risks on outcomes for injured workers

Laaksonen M, Rantala J, Liukko J, Polvinen A, Varis J, Kesala M, et al. Individual- and company-level predictors of receiving

vocational rehabilitation: a multilevel study of Finnish private sector workplaces. Journal of Occupational Rehabilitation. 2020; 30(2):263-273.

<https://doi.org/10.1007/s10926-019-09869-8> [open access]

Abstract: Purpose The aim of this study was to examine the magnitude of company-level variation in vocational rehabilitation (VR) and to determine which individual- and company-level characteristics are associated with receiving VR due to mental disorders, musculoskeletal diseases, and other somatic diseases. Methods A 30% random sample of all Finnish private sector companies with more than 10 employees aged 25-62 years at the end of 2010 (5567 companies with 300,601 employees) was followed up for the receipt of VR over the next 6 years. Company size and industry, as well as gender, age, education, social class and sickness absence measured both at the individual- and company-level were used as explanatory variables in multilevel logit models. Results After controlling for the individual-level characteristics, 12% of the variance in VR was attributed to the company level. The proportion was largest in VR due to musculoskeletal diseases. Receiving VR was more common among women, older employees (except the oldest age group), those with low education (particularly due to musculoskeletal diseases), low social class, and previous sickness absence. Receiving VR was more common in larger companies, and in construction and in health and social work, and less common in professional, scientific and technical activities. Furthermore, receiving VR was more common in companies with low proportion of highly educated employees and with higher sickness absence rates. Conclusions Company-level variation in receiving VR was substantial. Adopting the practices of the companies with highest participation in VR could help to avoid work disability problems.

Lallukka T, Hiilamo A, Pietilainen O, Manty M, Kouvonen A, and Rahkonen O. Who maintains good health functioning? The contribution of social, work-related and behavioural factors to mental and physical health functioning trajectories in ageing employees. Occupational and Environmental Medicine. 2020; 77(7):478-487.

<https://doi.org/10.1136/oemed-2019-106324>

Abstract: OBJECTIVES: The determinants of poor functioning and

subsequent early exit from work are well established but very little is known about the positive determinants of maintaining good functioning among the ageing workforce. We investigated modifiable determinants of maintaining good mental and physical health functioning. METHODS: We used prospective survey data collected across four waves among the midlife employees of the City of Helsinki, Finland, 2000-2017 (n=3342). Health functioning was repeatedly measured using the Short Form 36 (SF-36) inventory. Trajectories of mental and physical health functioning were separately examined using group-based trajectory analysis. Multinomial logistic regression models were fitted to examine determinants of each trajectory. RESULTS: Four trajectory solutions for the developmental patterns in health functioning during the follow-up period were selected, with a slightly different shape of the first trajectory for mental and physical functioning: (1) continuously low (mental), low and decreasing (physical), (2) increasing, (3) decreasing and (4) continuously high functioning. After adjustments, the employees in the continuously high mental health functioning group were more likely to have optimal job demands, high job control, no sleep problems and no binge drinking behaviour. Employees in the continuously high physical functioning group had more likely low levels of physically strenuous work and hazardous working environment and no sleep problems and normal weight. CONCLUSION: High job control, good sleep and avoiding binge drinking may help maintain good mental health functioning. Low levels of physical or environmental work exposures, good sleep and recommended healthy weight may support maintenance of good physical health functioning among ageing employees

McGovern P. In search of theory? The workplace case-study tradition in the 21st century. *Industrial Relations Journal*. 2020; 51(3):136-152.

<https://doi.org/10.1111/irj.12285> [open access]

Abstract: Workplace case studies have been valued by some for their ability to advance theory while others dismiss them as little more than descriptive stories. This paper presents a detailed content analysis of case study articles to assess the relative balance between theory, conceptual analysis and description. Drawing on a random sample of papers (n = 173) published in leading journals, I find that fewer than

one in seven are descriptive papers while only one in ten are theory oriented. Using three criteria, I identify exemplars of theoretical and conceptual analysis and show how these may be used to advance the field.

van de Poll MK, Nybergh L, Lornudd C, Hagberg J, Bodin L, Kwak L, et al. Preventing sickness absence among employees with common mental disorders or stress-related symptoms at work: a cluster randomised controlled trial of a problem-solving-based intervention conducted by the Occupational Health Services. Occupational and Environmental Medicine. 2020; 77(7):454-461.

<https://doi.org/10.1136/oemed-2019-106353> [open access]

Abstract: OBJECTIVES: Common mental disorders (CMDs) are among the main causes of sickness absence and can lead to suffering and high costs for individuals, employers and the society. The occupational health service (OHS) can offer work-directed interventions to support employers and employees. The aim of this study was to evaluate the effect on sickness absence and health of a work-directed intervention given by the OHS to employees with CMDs or stress-related symptoms. METHODS: Randomisation was conducted at the OHS consultant level and each consultant was allocated into either giving a brief problem-solving intervention (PSI) or care as usual (CAU). The study group consisted of 100 employees with stress symptoms or CMDs. PSI was highly structured and used a participatory approach, involving both the employee and the employee's manager. CAU was also work-directed but not based on the same theoretical concepts as PSI. Outcomes were assessed at baseline, at 6 and at 12 months. Primary outcome was registered sickness absence during the 1-year follow-up period. Among the secondary outcomes were self-registered sickness absence, return to work (RTW) and mental health. RESULTS: A statistical interaction for group x time was found on the primary outcome ($p=0.033$) and PSI had almost 15 days less sickness absence during follow-up compared with CAU. Concerning the secondary outcomes, PSI showed an earlier partial RTW and the mental health improved in both groups without significant group differences. CONCLUSION: PSI was effective in reducing sickness absence which was the primary outcome in this study

Senthilselvan A, Coonghe WV, and Beach J. Respiratory health, occupation and the healthy worker effect. *Occupational Medicine*. 2020; 70(3):191-199.

<https://doi.org/10.1093/occmed/kqaa023>

Abstract: **BACKGROUND:** Workers are exposed to physical, chemical and other hazards in the workplace, which may impact their respiratory health. **AIMS:** To examine the healthy worker effect in the Canadian working population and to identify the association between occupation and respiratory health. **METHODS:** Data from four cycles of the Canadian Health Measures Survey were utilized. The current occupation of employed participants was classified into 10 broad categories based on National Occupation Category 2011 codes. Data relating to 15 400 subjects were analysed. **RESULTS:** A significantly lower proportion of those in current employment than those not in current employment reported respiratory symptoms or diseases or had airway obstruction. Similarly, those currently employed reported better general health and had greater mean values for percent-predicted forced vital capacity (FVC), forced expiratory volume in one second (FEV1), forced expiratory flow between 25% and 75% of FVC (FEF25-75%) and FEV1/FVC ratio. Among males, females and older age groups, significant differences were observed for almost all the respiratory outcomes for those in current employment. Those in 'Occupations unique to primary industry' had a significantly greater likelihood of regular cough with sputum and ever asthma and had lower mean values of percent-predicted FEV1/FVC and FEF25-75% than those in 'Management occupations'. Those in 'Health occupations' had the highest proportion of current asthma. **CONCLUSIONS:** Participants in current employment were healthier than those not in current employment providing further support for the healthy worker effect. Those in 'Occupations unique to primary industry' had an increased risk of adverse respiratory outcomes and reducing workplace exposures in these occupations has the potential to improve their respiratory health

Vogus TJ, Ramanujam R, Novikov Z, Venkataramani V, and Tangirala S. Adverse events and burnout: the moderating effects of workgroup identification and safety climate. *Medical Care*. 2020; 58(7):594-600.

<https://doi.org/10.1097/MLR.0000000000001341>

Abstract: **BACKGROUND:** Prior research has found that adverse events have significant negative consequences for the patients (first victim) and caregivers (second victim) involved such as burnout. However, research has yet to examine the consequences of adverse events on members of caregiving units. We also lack research on the effects of the personal and job resources that shape the context of how adverse events are experienced. **OBJECTIVES:** We test the relationship between job demands (the number of adverse events on a hospital nursing unit) and nurses' experience of burnout. We further explore the ways in which personal (workgroup identification) and job (safety climate) resources amplify or dampen this relationship. Specifically, we examine whether, and the conditions under which, adverse events affect nurse burnout. **RESEARCH DESIGN:** Cross-sectional analyses of survey data on nurse burnout linked to hospital incident reporting system data on adverse event rates for the year before survey administration and survey data on workgroup identification and safety climate. **SUBJECTS:** Six hundred three registered nurses from 30 nursing units in a large, urban hospital in the Midwest completed questionnaires. **RESULTS:** Multilevel regression analysis indicated that adverse events were positively associated with nurse burnout. The effects of adverse events on nurse burnout were amplified when nurses exhibited high levels of workgroup identification and attenuated when safety climate perceptions were higher. **CONCLUSIONS:** Adverse events have broader negative consequences than previously thought, widely affecting nurse burnout on caregiving units, especially when nurses strongly identify with their workgroup. These effects are mitigated when leaders cultivate safety climate

Wong KCK and Chan AKK. Work antecedents, psychological strain and safety behaviours among Chinese hotel employees. Safety Science. 2020; 129:104825.
<https://doi.org/10.1016/j.ssci.2020.104825>