IWH Research Alert
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*Lyubykh Z, Ansari MA, Williams-Whitt K, and Kristman VL. Disability severity, leader-member exchange, and attitudinal outcomes: considering the employee and supervisor perspectives. Journal of Occupational Rehabilitation. 2020; [Epub ahead of print].
https://doi.org/10.1007/s10926-020-09884-0

Abstract: Purpose Although the effects of disability on employee work outcomes are well-documented, the mechanism that explain these relationship remains unclear. We propose that the quality of relationships employees with disabilities develop with their supervisors explains the link between disability severity and employee work outcomes. More specifically, we examine the mediating role of leader-member exchange (LMX) in the relationship between employee disability severity and presenteeism, job accommodation, supervisor-rated performance, job satisfaction, and resilience. We test this proposition from two perspectives: employees with disabilities and supervisors who had supervised employees with disabilities. Method We collected data from employees with musculoskeletal disabilities (Sample 1, N = 264) and supervisors who had supervised employees with musculoskeletal disabilities in the

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past two years (Sample 2, N = 224). Results From the perspective of employees with disabilities (Sample 1), disability severity was negatively related to LMX quality (R(2) = .28). Contrary to our hypothesis, we found a positive relationship between supervisor perceptions of employee disability severity and LMX in Sample 2 (R(2) = .27). After adjusting for disability severity, LMX quality was related to improved outcomes in both samples: higher employee job satisfaction (Sample 1: R(2) = .36), provision of job accommodations (Sample 1: R(2) = .16; Sample 2: R(2)= .15), resilience (Sample 1: R(2) = .18), lower levels of presenteeism (Sample 1: R(2) = .20), and higher performance evaluations for employees with disabilities (Sample 2: R(2) = .49). Conclusion By collecting two separate samples, we revealed similarities and differences in employee and supervisor perspectives. Our findings demonstrated the need for including both perspectives when considering implications of employee disability severity

Ahlin JK, Peristera P, Westerlund H, and Magnusson Hanson LL. Psychosocial working characteristics before retirement and depressive symptoms across the retirement transition: a longitudinal latent class analysis. Scandinavian Journal of Work, Environment & Health. 2020; [Epub ahead of print].
Abstract: Objectives Retirement is a major life transition. However, previous evidence on its mental health effects has been inconclusive. Whether retirement is desirable or not may depend on pre-retirement work characteristics. We investigated trajectories of depressive symptoms across retirement and how a number of psychosocial working characteristics influenced these trajectories. Methods We included 1735 respondents from the Swedish Longitudinal Occupational Survey of Health (SLOSH), retiring during 2008-2016 (mean retirement age 66 years). They had completed biennial questionnaires reporting job demands, decision authority, workplace social support, efforts, rewards, procedural justice and depressive symptoms. We applied group-based trajectory modelling to model trajectories of depressive symptoms across retirement. Multinomial logistic regression analyses estimated the associations between - psychosocial working characteristics and depressive symptom trajectories. Results We identified five depression trajectories. In four

of them, depressive symptoms decreased slightly around retirement. In one, the symptom level was initially high, then decreased markedly across retirement. Perceptions of job demands, job strain, workplace social support, rewards, effort-reward imbalance and procedural justice were associated with the trajectories, while perceptions of decision authority and work efforts were only partly related to the trajectories. Conclusions We observed a rather positive development of depressive symptoms across retirement in a sample of Swedish retirees. For a small group with poor psychosocial working characteristics, symptoms clearly decreased, which may indicate that a relief from poor working characteristics is associated with an improvement for some retirees. However, for other retirees poor working characteristics were associated with persistent symptoms, suggesting a long-term effect of these work stressors

Albrecht SC, Kecklund G, and Leineweber C. The mediating effect of work-life interference on the relationship between work-time control and depressive and musculoskeletal symptoms. Scandinavian Journal of Work, Environment & Health. 2020; [Epub ahead of print].
https://doi.org/10.5271/sjweh.3887 **[open access]**

Abstract: Objectives Evidence shows that work-time control (WTC) affects health but underlying mechanisms are still unclear. Work-life interference (WLI) might be a step on the causal pathway. The present study examined whether WLI mediates effects on mental and physical health and contrasted these to other causal pathways. Methods Four biennial waves from the Swedish Longitudinal Occupational Survey of Health (SLOSH, N=26 804) were used. Cross-lagged analyses were conducted to estimate if WLI mediated effects from WTC (differentiating between control over daily hours and time off) to subsequent depressive and musculoskeletal symptoms. Other causal directions (reversed mediation, direct and reversed direct effects) and robustness of mediation (by including covariates) were examined. Results WLI partially mediated the relationship of WTC (control over daily hours/time off) with both health outcomes. Indirect effect estimates were small for depressive symptoms (-0.053 for control over time off and -0.018 for control over daily hours) and very small for musculoskeletal symptoms (-0.007 and -0.003, respectively). While other causal directions were

generally weaker than causal mediational pathways, they played a larger role for musculoskeletal compared to depressive symptoms. Estimates relating to control over time off were in general larger than for control over daily hours. Conclusions Our results suggest that WLI mediates part of the effect from WTC to mental/musculoskeletal symptoms, but small estimates suggest that (i) WTC plays a small but consistent role in effects on health and (ii) particularly regarding musculoskeletal disorders, other causal directions and mediators need to be further examined

Cakit E, Olak AJ, Karwowski W, Marek T, Hejduk I, and Taiar R. Assessing safety at work using an adaptive neuro-fuzzy inference system (ANFIS) approach aided by partial least squares structural equation modeling (PLS-SEM). International Journal of Industrial Ergonomics. 2020; 76:102925.
https://doi.org/10.1016/j.ergon.2020.102925

D'Ettorre G, Pellicani V, and Greco M. Job stress and needlestick injuries in nurses: a retrospective observational study. Acta Bio-Medica. 2020; 91(2-S):45-49.
https://doi.org/10.23750/abm.v91i2-S.8824

Abstract: BACKGROUND: The prevention of needlestick injuries (NSIs) in nurses employed in Emergency Departments (EDs) represents a special issue for healthcare organizations globally. Stressful working conditions, lack of organizational arrangements and lack of supporting one another at work, may contribute to increase the risk of NSIs. METHODS: We conducted an observational study to analyze: 1) the effectiveness of organizational interventions to minimize the occurrence of NSIs in ED nurses; 2) to measure the impact of such interventions on the safety budget. RESULTS: The occurrence of NSIs detected after organizational level interventions was significantly lower than the occurrence observed previously such interventions (p<0,05). By results, cost saving from managing fewer NSIs than the previous period was found. CONCLUSION: The study shows that the proactive, integrated and comprehensive management of organizational features at workplace brings benefits to employees and reduces the burden of the occurrence of NSIs. As result of the reduced NSIs frequency, the overall costs for follow-up of injured workers were reduced. (www.actabiomedica.it)

Fadlallah R, El-Harakeh A, Bou-Karroum L, Lotfi T, El-Jardali F, Hishi L, et al. A common framework of steps and criteria for prioritizing topics for evidence syntheses: a systematic review. Journal of Clinical Epidemiology. 2020; 120:67-85.
https://doi.org/10.1016/j.jclinepi.2019.12.009

Abstract: OBJECTIVE: The objective of the study was to systematically review the literature for proposed approaches and exercises conducted to prioritize topics or questions for systematic reviews and other types of evidence syntheses in any health-related area. STUDY DESIGN AND SETTING: A systematic review. We searched Medline and CINAHL databases in addition to Cochrane website and Google Scholar. Teams of two reviewers independently screened the studies and extracted data. RESULTS: We included 31 articles reporting on 29 studies: seven proposed approaches for prioritization and 25 conducted prioritization exercises (three studies did both). The included studies addressed the following fields: clinical (n = 19; 66%), public health (n = 10; 34%), and health policy and systems (n = 8; 28%), with six studies (21%) addressing more than one field. We categorized prioritization into 11 steps clustered in 3 phases (preprioritization, prioritization, and postprioritization). Twenty-eight studies (97%) involved or proposed involving stakeholders in the priority-setting process. These 28 studies referred to twelve stakeholder categories, most frequently to health care providers (n = 24; 86%) and researchers (n = 21; 75%). A common framework of 25 prioritization criteria was derived, clustered in 10 domains. CONCLUSION: We identified literature that addresses different aspects of prioritizing topics or questions for evidence syntheses, including prioritization steps and criteria. The identified steps and criteria can serve as a menu of options to select from, as judged appropriate to the context

Gomez MM. Prediction of work-related musculoskeletal discomfort in the meat processing industry using statistical models. International Journal of Industrial Ergonomics. 2020; 75:102876.
https://doi.org/10.1016/j.ergon.2019.102876   [open access]

Abstract: Musculoskeletal disorders are one of the most common occupational disorders in the manufacturing industry, and cause pain, suffering, disability and a decrease in productivity. The objective of

this study was the development of statistical models for the prediction of work-related musculoskeletal discomfort. A sample of 174 workers of the meat processing industry was taken. Diverse ergonomic evaluation methods were applied on data collected by means of direct observation and surveys. Later, pattern recognition techniques were used to identify the relevant predictor variables from an initial set of 20 variables. A prevalence of musculoskeletal discomfort of 77% was found. The most suitable classification models to predict the discomfort were the models based on logistic regression and decision trees. Statistical models were obtained to predict discomfort in shoulders, back, hands/wrists and neck with a precision between 83.3% and 90.2%. The findings can be useful to guide improvement initiatives according to the specific characteristics of the job and the profile of the worker

Guerin RJ and Toland MD. An application of a modified theory of planned behavior model to investigate adolescents' job safety knowledge, norms, attitude and intention to enact workplace safety and health skills. Journal of Safety Research. 2020; 72:189-198.
https://doi.org/10.1016/j.jsr.2019.12.002   **[open access]**

Abstract: INTRODUCTION: For many reasons, including a lack of adequate safety training and education, U.S. adolescents experience a higher rate of job-related injury compared to adult workers. Widely used social-psychological theories in public health research and practice, such as the theory of planned behavior, may provide guidance for developing and evaluating school-based interventions to prepare adolescents for workplace hazards and risks. METHOD: Using a structural equation modeling approach, the current study explores whether a modified theory of planned behavior model provides insight on 1,748 eighth graders' occupational safety and health (OSH) attitude, subjective norm, self-efficacy and behavioral intention, before and after receiving instruction on a free, national young worker safety and health curriculum. Reliability estimates for the measures were produced and direct and indirect associations between knowledge and other model constructs assessed. RESULTS: Overall, the findings align with the theory of planned behavior. The structural equation model adequately fit the data; most path coefficients are statistically significant and knowledge has

indirect effects on behavioral intention. Confirmatory factor analyses suggest that the knowledge, attitude, self-efficacy, and behavioral intention measures each reflect a unique dimension (reliability estimates >/=0.86), while the subjective norm measure did not perform adequately. CONCLUSION: The findings presented provide support for using behavioral theory (specifically a modified theory of planned behavior) to investigate adolescents' knowledge, perceptions, and behavioral intention to engage in safe and healthful activities at work, an understanding of which may contribute to reducing the downstream burden of injury on this vulnerable population-the future workforce. Practical application: Health behavior theories, commonly used in the social and behavioral sciences, have utility and provide guidance for developing and evaluating OSH interventions, including those aimed at preventing injuries and promoting the health and safety of adolescent workers in the U.S., who are injured at higher rates than are adults

Kaya C, Leslie M, McDaniels B, Cuevas S, Wu H, Rumrill P, et al. Vocational rehabilitation factors associated with successful return to work outcomes for clients with Parkinson's disease. Journal of Vocational Rehabilitation. 2020; 52(2):145-156.
https://doi.org/10.3233/JVR-191065

Kwak K, Paek D, and Park JT. Occupational exposure to formaldehyde and risk of lung cancer: a systematic review and meta-analysis. American Journal of Industrial Medicine. 2020; 63(4):312-327.
https://doi.org/10.1002/ajim.23093
Abstract: BACKGROUND: Formaldehyde exposure is associated with nasopharyngeal cancer and leukemia. Previously-described links between formaldehyde exposure and lung cancer have been weak and inconsistent. We performed a systematic review and meta-analysis to evaluate quantitatively the association between formaldehyde exposure and lung cancer. METHODS: We searched for articles on occupational formaldehyde exposure and lung cancer in PubMed, EMBASE, Web of Science, and CINAHL databases. In total, 32 articles were selected and 31 studies were included in a meta-analysis. Subgroup analyses and quality assessments were also performed. RESULTS: The risk of lung cancer among workers

exposed to formaldehyde was not significantly increased, with an overall pooled risk estimate of 1.04 (95% confidence interval [CI], 0.97-1.12). The pooled risk estimate of lung cancer was increased when higher exposure studies were considered (1.19; 95% CI, 0.96-1.46). More statistically robust results were obtained when high quality (1.13; 95% CI, 1.08-1.19) and recent (1.13; 95% CI, 1.07-1.19) studies were used in deriving pooled risk estimates. CONCLUSIONS: No significant increase in the risk of lung cancer was evident in the overall pooled risk estimate; even in higher formaldehyde exposure groups. Our findings do not provide strong evidence in favor of formaldehyde as a risk factor for lung cancer. However, since risk estimates were significantly increased for high-quality and recent studies, the possibility that exposure to formaldehyde can increase the risk of lung cancer might still be considered

Letafatkar A, Rabiei P, Alamooti G, Bertozzi L, Farivar N, and Afshari M. Effect of therapeutic exercise routine on pain, disability, posture, and health status in dentists with chronic neck pain: a randomized controlled trial. International Archives of Occupational and Environmental Health. 2020; 93(3):281-290. https://doi.org/10.1007/s00420-019-01480-x

Abstract: PURPOSE: To investigate the effect of therapeutic exercise (TE) on pain, disability, posture, and health status in female dentists suffering from chronic neck pain (NP). METHODS: 48 female dentists (40-45 years) suffering from NP were randomly divided into two experimental (n = 24) and control (n = 24) groups. Experimental group received 8 weeks of TE aimed to improve (1) muscle coordination and proprioception, (2) muscular endurance, and (3) muscle strength. Control group received no specific exercises. The pain, disability, posture (forward head and protracted shoulder angles), and health status were assessed at baseline and after an 8-week TE by visual analogue scale (VAS), neck disability index (NDI), photogrammetry, and self-rated general health questionnaire, respectively. Wilcoxon and Mann-Whitney non-parametric tests were used for statistical analysis. RESULTS: There were significant between-group differences in neck pain [p = 0.003, 0.86 (0.09-1.65)], disability [p = 0.009, ES (95% CI) = 0.78 (0.020-1.37)], forward head angle [p = 0.039, ES (95% CI) = 0.61 (0.034-1.19)], protracted

shoulder angle [p = 0.031, ES (95% CI) = 0.64 (0.062-1.22)], and health status [p = 0.022, ES (95% CI) = 0.68 (0.102-1.26)] favoring the corrective exercise group. There were significant within-group changes in pain, disability, posture, and health status in the experimental group. However, there were no within group changes in the control group. CONCLUSIONS: TEs successfully alleviated pain, disability, posture, and health status in female dentists suffering from chronic NP. Considering the extremely large effect size of TEs, this intervention was recommended to neck pain treatment in patients suffering from chronic NP, poor posture, and health problem

Piggott T, Morgan RL, Cuello-Garcia CA, Santesso N, Mustafa RA, Meerpohl JJ, et al. Grading of Recommendations Assessment, Development, and Evaluations (GRADE) notes: extremely serious, GRADE's terminology for rating down by three levels. Journal of Clinical Epidemiology. 2020; 120:116-120.

https://doi.org/10.1016/j.jclinepi.2019.11.019

Abstract: OBJECTIVES: The Grading of Recommendations Assessment, Development, and Evaluations (GRADE) system for assessing certainty in a body of evidence currently uses two levels, serious and very serious, for downgrading on a single domain. In the context of newer risk of bias instruments, such as Risk of Bias in Non-Randomized Studies I (ROBINS-I), evidence generated by nonrandomized studies may justify rating down by more than two levels on a single domain. Given the importance users of GRADE assign to terminology, our objective was to assess what term GRADE stakeholders would prefer for rating down certainty by three levels. STUDY DESIGN AND SETTING: We conducted a purposefully sampled online survey of GRADE stakeholders to assess possible terms including "critically serious," "extremely serious," "most serious," and "very, very serious" and conducted a descriptive and thematic analysis of responses. We then facilitated a GRADE working group workshop to generate consensus. RESULTS: A total of 225 respondents ranked and rated "extremely serious" highest, closely followed by "critically serious." Respondents felt that "extremely serious" was "more understandable" and "easiest to interpret". GRADE working group members described that the terms "extremely serious" appeared clearer and easier to translate in other languages.

CONCLUSION: Based on this stakeholder-driven study, "extremely serious" is the preferred term to rate down certainty of evidence by three levels in the GRADE approach

Rasmussen CDN, Sorensen OH, van der Beek AJ, and Holtermann A. The effect of training for a participatory ergonomic intervention on physical exertion and musculoskeletal pain among childcare workers (the TOY project): a wait-list cluster-randomized controlled trial. Scandinavian Journal of Work, Environment & Health. 2020; [Epub ahead of print].
https://doi.org/10.5271/sjweh.3884   [open access]

Abstract: Objective Many employees have high physical exertion at work and suffer from musculoskeletal pain (MSP) leading to sickness absence with large costs. Participatory ergonomics is a potentially effective intervention for reducing physical exertion, MSP and sickness absence. The main aim of this study was to investigate the effectiveness of a 20-week workplace participatory ergonomic intervention among childcare workers on physical exertion and MSP. Methods In a two-arm cluster-randomized trial, 190 workers were recruited from 16 childcare institutions and randomly assigned to either a 20-week participatory ergonomics intervention consisting of three training workshops or a control group receiving usual care. Primary outcomes were physical exertion during work, maximal pain intensity, number of pain regions, and pain-related work interference. Secondary outcomes were MSP-related sickness absence, need for recovery (NFR), employee involvement, and self-efficacy. We followed the intention-to-treat principle and adhered to the registered study protocol (ISRCTN10928313). Results After 20 weeks, half the workers noticed some positive changes in their work. However, there were no statistically discernible effects in physical exertion, maximum pain intensity, pain-related work interference, or number of pain regions. We found a significant reduction of MSP-related sickness absence in the intervention compared to the control group [-0.48 days per month (95% confidence interval (CI), -0.8- -0.1]. We found no significant effects in NRF or involvement of employees, but self-efficacy was reduced in the intervention compared to the control group [-0.2 (95% CI, -0.3- -0.0)]. Conclusion This 20-week training for a participatory ergonomic intervention in childcare workers did not

show effects on physical exertion and MSP, but was both feasible and effective in reducing MSP-related sickness absence

Serranheira F, Sousa-Uva M, Heranz F, Kovacs F, and Sousa-Uva A. Low Back Pain (LBP), work and absenteeism. Work. 2020; 65(2):463-469.

https://doi.org/10.3233/WOR-203073

Abstract: BACKGROUND: Occupational physical demands are commonly assumed the cause of work-related Low Back Pain (LBP) and absenteeism. OBJECTIVES: To analyse relationships between LBP at work, physical demands and absenteeism. METHODS: Workers filled out a questionnaire on socio-demographic and work-related factors, general health, LBP (number of episodes in a 12-month period, pain severity and intensity), and occupational hazards related with physical demands. RESULTS: 735 workers completed the questionnaire (male n = 359). A high proportion of workers n = 507 (69%), from different occupational backgrounds, reported at least one LBP episode in the previous 12-month period. The highest ratio of subjects with more than 6 episodes of LBP per year was found among public services employees (31.8%) and the lowest ratio among administrative workers (10.3%). The highest ratio of workers (39%) were classified as sedentary workers, 34% of workers having a low or moderate level of physical demands in their work, and 27% reported high levels of physical demands in their work. There was a 4 % absenteeism rate in a 12-month period, which was significantly higher in the group with physically demanding work. Those subjects with higher physical requirements at work have increased odds of having more than 3 episodes of LBP during the previous year (p < 0.05) in comparison with subjects with more sedentary jobs and those with low or moderate physical demands. High intensity work, compared to sedentary work, is associated with an increased probability of being absent of work because of LBP in a previous 12-month period (OR = 3.12; CI 1.23-7.89; p = 0.016). CONCLUSIONS: Our findings suggest there is an association between highly physically demanding jobs, LBP and absenteeism. These results may contribute to the improvement of LBP assessment and prevention programs in Occupational Health Services

Snyder K, Hill M, Lee M, Crawford TN, and Orlowski M. The relationships between physical health and chronic disease, stress, and resource strain in head start employees. Workplace Health & Safety. 2020; 68(4):190-201.
https://doi.org/10.1177/2165079919882952

Abstract: Background: Emerging research indicates that Head Start employees often struggle with health issues and may not be able to model the healthy behaviors that they hope to instill in young children. The purpose of this study was to examine the relationships between perceived physical health and chronic disease, stress, financial-resource strain, and job type. Method: This study was conducted in a large, multi-site Head Start agency located across five counties in the American Midwest. Employees (N = 550) were invited to complete a 58-item questionnaire that assessed overall health and health behaviors, demographics, workplace environment, and interest in well-being programs. Bivariate analysis and multinomial logistic regressions were used to analyze the relationships between variables of interest and physical health. Findings: More than half (n = 295; 53.64%) responded, and one quarter of the employees (25.42%) reported poor or fair health. Poor and fair physical health was associated with the number of chronic conditions, difficulty paying for basic necessities, and perceived stress, but not job type. A high percentage of responding employees (83.34%) reported interest in well-being programs, yet interests varied significantly by health status. Employees with poor and fair health expressed interest in stress and emotional-coping programs, in contrast to the fitness interests of employees who reported good, very good, or excellent health. Conclusion/Application to Practice: To meet the needs of employees with poor or fair physical health, employers should offer health behavior modification programs that address the sources of employee stress, including financial-resource strain and mental health challenges

Taouk Y, LaMontagne AD, Spittal MJ, and Milner A. Psychosocial work stressors and risk of mortality in Australia: analysis of data from the Household, Income and Labour Dynamics in Australia survey. Occupational and Environmental Medicine. 2020; 77(4):256-264.
https://doi.org/10.1136/oemed-2019-106001

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Abstract: OBJECTIVE: To examine the association between exposures to psychosocial work stressors and mortality in a nationally representative Australian working population sample. METHODS: 18 000 participants from the Household, Income and Labour Dynamics in Australia survey with self-reported job demands, job control, job security and fair pay psychosocial work stressors exposures at baseline were followed for up to 15 waves. Cox proportional hazards regression models were used to examine the association between psychosocial work stressors and mortality. Models were serially adjusted for each subgroup of demographic, socioeconomic, health and behavioural risk factors. RESULTS: Low job control was associated with a 39% increase in the risk of all-cause mortality (HR 1.39; 95% CI 1.04 to 1.85), controlling for demographic, socioeconomic, health and behavioural factors. A decreased risk of mortality was observed for workers with exposure to high job demands (HR 0.76; 95% CI 0.60 to 0.96, adjusted for gender and calendar), but the risk was attenuated after serially adjusting for socioeconomic status, health (HR=0.84; 95% CI 0.65 to 1.08) and behavioural (HR=0.79; 95% CI 0.60 to 1.04) factors. There did not appear to be an association between exposure to job insecurity (HR 1.03; 95% CI 0.79 to 1.33) and mortality, or unfair pay and mortality (HR 1.04; 95% CI 0.80 to 1.34). CONCLUSIONS: Low job control may be associated with an increased risk of all-cause mortality. Policy and practice interventions that reduce the adverse impact of low job control in stressful work environments could be considered to improve health and decrease risk of mortality

Wong TK, Man S, and Chan AH. Critical factors for the use or non-use of personal protective equipment amongst construction workers. Safety Science. 2020; 126:104663.
https://doi.org/10.1016/j.ssci.2020.104663

Xia N, Lam W, Tin P, Yoon S, Zhang N, Zhang W, et al. Patterns of cancer-related risk behaviors among construction workers in Hong Kong: a latent class analysis approach. Safety and Health at Work. 2020; 11(1):26-32.
https://doi.org/10.1016/j.shaw.2019.12.009   **[open access]**
Abstract: Background: Hong Kong's construction industry currently faces a manpower crisis. Blue-collar workers are a disadvantaged

group and suffer higher levels of chronic diseases, for example, cancer, than the wider population. Cancer risk factors are likely to cluster together. We documented prevalence of cancer-associated lifestyle risk behaviors and their correlates among Hong Kong construction workers. Methods: Data were collected from workers at 37 railway-related construction worksites throughout Hong Kong during May 2014. Tobacco use, alcohol consumption, unbalanced nutrition intake, and physical inactivity were included in the analysis. Latent class analysis and multivariable logistic regression were performed to identify the patterns of risk behaviors related to cancer, as well as their impact factors among construction workers in Hong Kong. Results: Overall, 1,443 workers participated. Latent class analysis identified four different behavioral classes in the sample. Fully adjusted multiple logistic regression identified age, gender, years of Hong Kong residency, ethnicity, educational level, and living status differentiated behavioral classes. Conclusion: High levels of lifestyle-related cancer-risk behaviors were found in most of the Hong Kong construction workers studied. The present study contributes to understanding how cancer-related lifestyle risk behaviors cluster among construction workers and relative impact factors of risk behaviors. It is essential to tailor health behavior interventions focused on multiple risk behaviors among different groups for further enlarging the effects on cancer prevention

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