negative affect) can explain the relationship between job factors and health behaviors. Energy-depleting factors better explained the relationships with health-promoting than health-risky behaviors, whereas anxiety-invoking factors better explained the relationships with health-risky behaviors than health-promoting behaviors.

Conclusion

With supportive evidence on the proposed energy-depleting and anxiety-invoking mechanisms, this research helps explain how work-related factors relate to one's health behaviors outside of work. These findings have theoretical and practical implications for scholars and practitioners aiming to understand and promote healthy workforces.

Too much of a good thing? Investigating the linearity in the association between influence at work and psychological well-being

Thomas Clausen (The National Research Center for the Working Environment, Denmark)

Statement of the problem. The concept of influence at work (aka job control and job autonomy) features prominently in central theories of work and organizational psychology (Karasek, 1979; Hackman & Oldham, 1976), and influence at work is an important determinant of worker well-being. Several studies have provided evidence suggesting a clear association between low influence at work and increased risk for mental and somatic health complaints, sickness absence, turnover and disability retirement (Theorell et al., 2015; Madsen et al., 2017; Theorell et al., 2016; Clausen et al., 2014; Knardahl et al., 2017; Clausen & Borg, 2010).

Influence at work can be characterized as a resource in the psychosocial work environment, and according to the Job Demands-Resources model, job resources reduce strain associated with job demands, enhance capacity to achieve work goals and stimulate personal growth, learning and development (Schaufeli & Bakker, 2004; Demerouti & Bakker, 2011). Hence, influence at work is expected to be positively associated with worker well-being.

However, according to Warr's Vitamin model (Warr, 1987) it may well be expected that the association between influence at work and psychological well-being is non-linear. Indeed, according to the Vitamin model, the association between influence at work (i.e. job control) and psychological well-being may be positive but only until a certain level of influence has been reached. After this level, the association may become negative implying that increases of influence after a certain level may have harmful effects on the psychological well-being of the worker. This phenomenon is labelled the 'additional decrement' in Warr's conceptualization.

The aim of this study is, therefore, to investigate whether the association between influence at work and psychological well-being is best characterized as a linear or a non-linear association - i.e. whether more influence at work generally entails improved psychological well-being or whether increasing levels of influence at work may indeed become "too much of a good thing."

Moreover, the study will investigate if the association differs across workers in four types of work: 1) work related to the processing of knowledge, 2) client-related work, 3) work related to production and transportation, and 4) work related to sales and marketing.

Procedures. This study is based on a survey conducted in a stratified sample of 8,958 individuals employed in 14 different job groups. These job groups were selected to obtain stratification by educational attainment (low, medium, high) and primary work-task (work related to the processing of knowledge, client-related work, work related to production and transportation, and sales work) of the respondents. Within each job group employees were randomly drawn from a national register on income and labor market attachment for all persons in Denmark. The data collection took place from April to June 2015. We obtained responses from 4,340 individuals, yielding a 48.4 percent response rate (Clausen et al., 2018).

A follow-up study was conducted with a six-month follow-up. 2,540 of the 4,340 participants from the baseline study participated in the follow-up study, yielding a 58.5 percent response rate.

Analyses. We tested for non-linearity by fitting a non-linear spline model against a linear model in R version 3.5.1. As the models are nested in this mode of analysis, we were able to compare model fit directly.

Cross-sectional analyses were conducted on the full study population and in analyses where participants were stratified by type of work. We also conducted longitudinal analyses on the full study populations to assess the robustness of the findings.

Results. Overall, the results from the cross-sectional analysis do not support the hypothesis of a non-linear association between influence at work and psychological well-being. The cross-sectional analysis indicates that the non-linear spline models are not significantly associated with psychological well-being when compared to a linear modelling of the association. Tendencies in the findings from the study suggest, however, that the strength of the association between influence at work and psychological well-being attenuates at high levels of influence at work. Further results will be presented at the conference.

Practical implications. The findings of the study do not support the conceptualization of influence at work (job control) from the Vitamin model. This implies that high levels of influence at work should not be considered harmful for the psychological well-being of workers. The findings of the study indicate that job redesign measures aiming at increasing influence at work (job control) may enhance the psychological well-being of workers - especially among workers with low initial levels of influence at work.

Conclusions. Influence at work is positively associated with psychological well-being and the patterns in the findings lend more support to an understanding of influence at work as a job resource within the Job Demands-Resources model rather than to understanding influence at work within the perspective offered by the Vitamin model.

Salon 3 & 4

Work Factors Associated With Worker Satisfaction and Happiness

PAPER SESSION

Associations between work factors and psychological distress in a convenience sample of commercial construction workers

Jack Dennerlein (Northeastern University)

Problem. Mental health and well-being among construction workers is a significant public health burden in the United States. While there is little work examining the mental health of construction workers, our previous work indicates that mental distress (as measured by the Hopkins Symptom Checklist–251) is higher (16%) among commercial

construction workers, than among the general male population.2 Construction workers have the second highest suicide rate compared to all occupational groups, second only to workers in the farming, fishing, and forestry industry.3 The rate in 2016 was 53.3 suicides per 100,000 persons, which is sizably higher than the fatal occupational injury rate of 10.1 fatalities per 100,000 full-time construction workers.3 With the construction industry employing on average 7.1 million workers, accounting for 5% of the working population, these high rates have a large impact on the U.S. general population.

Based on this high prevalence in a given occupation, programs to improve construction worker mental health and well-being should probably target factors in the worksite environment within a Total Worker Health® Conceptual Framework.4.4 The construction industry has many different organizations that interact with the worker's safety, health, and well-being.5 More work is needed to understand the workplace factors that contribute to the higher prevalence mental health outcomes. This research is an important next step for identifying opportunities to best support construction workers mental health and well-being in the workplace.

The goal of this abstract is to determine the associations of workplace factors and mental distressed in a convivence sample of commercial construction safety and health stakeholders as well as workers in the Boston metropolitan area through a sequential qualitative-quantitative mix-methods approach.

Procedures. First, we conducted eight semi-structured interviews with key stakeholders and six focus groups of 4-12 construction workers. The interviews consisted of ten questions about their experiences with the mental health and well-being of construction workers and the role of workplace factors. The stakeholders included construction project managers and health and safety directors. Participants in the focus groups included foremen, journeymen, and apprentices. Participants in all but one of the focus groups were recruited via the sites' general contracting or subcontracting organizations. For one group, participants were recruited from a local union training facility.

Second, we conducted a worker survey of 259 construction workers from five commercial construction sites in the Boston metropolitan (Table 1).). The primary outcome in the survey was the K6-psychological distress scale.6

Other factors in the survey included work-related factors identified in the interviews and the focus groups that participants considered important for mental health and well-being. The survey used validated scales to measure these factors (Table 2). These factors included safety climate, job demands, decision latitude coworker and supervisor support, work to family conflict and job security. All scripts, surveys and procedures were approved by the Northeastern University Office for Human Subject Research Protection.

Analyses. We used thematic analysis to explore the qualitative data collected from the key informant interviews and focus groups.7 To examine quantitative associations among workplace factors and mental health, crude and adjusted (age and position) rate ratios were estimated using negative-binomial regression models.

Results. The qualitative analysis identified three types of work factors that were associated with mental health and well-being: 1) job structure including work place hazards, job demands including production pressures, and work-family conflict attributed to the working hours, 2) relational factors including relationships with foremen, supervisors, and coworkers as well as on the job harassment, and 3) job security.

The quantitative analysis of the survey data identified associations between K6 psychological distress scale and many of the work factors (Table 2). Better safety climate and greater supervisor support scales were associated with lower K6 scores. Greater perceptions of job demands, on the job harassment, and work to family conflict were associated with higher K6 scores. Those who reported they were likely to lose their job also reported higher K6 scores. These associations remained significant in the models adjusted for age and trade.

Practical Implications and Conclusions. Approaches to improving mental health and well-being among commercial construction workers should consider the role of workplace factors. A novel outcome was the association with work to family conflict in a male population. Both the qualitative and quantitative data describe this association. Another factor was not knowing what the next commute would be like as well as nonflexible work hours typical of the industry making it difficult to participate in family tasks and activities. Relational factors play an important role, especially harassment. Production pressures were also discussed intensifying work and adding stress to work.

These factors indicate many points of potential interventions; however, these interventions addressing these factors need to be examined to determine their feasibility and efficacy.

Does Happiness Matter? Outcomes of a Participatory Intervention Program to Improve Workplace Stress May Differ by Happiness Levels Among University Hospital Nurses

Tsukumi Tondokoro (International University of Health and Welfare, Japan)

Problem: According to Japanese nursing association (2009), nearly one in 23 nurses in Japan were in a high risk of Karoshi due to excessive workloads and shortage of nursing staffs. Therefore, it is urgent for Japanese nurses to improve workplace environment. Organizational development programs at the workplace, i.e. a participatory program, have been used to improve employees' health and safe working environment. An employee participatory program identifies problems at work and tackles them directly by feasible actions. It is employee- and workplace-centered approach and it is well adapted in many countries and in different work settings. To conduct better programs and to enhance the effect of them, in this study, we investigated whether outcomes from a participatory program differed with participants' levels of happiness as exemplified by a group of hospital nurses. To evaluate the outcomes of the intervention, our study introduced two different objective markers such as blood inflammatory markers and autonomic nerve balance.

Procedures. Participants were nurses working at a multiple-unit hospital with 150 beds in the southern part of Japan. Through the nursing department, all nurses in the hospital were recruited for this study. A total of 36 nurses agreed to participate in this study. Excluding the ones who became pregnant and who were off from work due to illness or family issue at the time of measurements, a total of 31 participants (all women) were submitted to final analysis. Upper tertile of participants in the answers regarding happiness from the questionnaire was considered as a high happiness group in this study (n=10).

Measurement. This study employed a self-administered questionnaire, measurement of autonomic nerve balance and immunological evaluation. The questionnaire contained questions regarding subjective happiness, occupation and psychosocial job stress, demographics, health status and lifestyle. Levels of happiness in general were measured by a 10-point Likert scale; 1=not happy at all, to 10=very much happy. Autonomic nerves balance [Sympathetic nerve; low frequency/total frequency (stand), mean R-R interval/R-R interval

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