negative outcomes of job insecurity. The aim of this study was to investigate the relationship between job insecurity, perceived employability and mental health among workers in public and private sector.

Methods A cross-sectional survey was conducted among 1038 Croatian workers from 6 different organisations. Healthcare and public transport service workers from public sector and industrial workers from private sector were included in this research. Correlational and regression analyses have been performed in SPSS.

Results Workers in public sector experience lower level of job insecurity and higher level of perceived employability in comparison to private sector workers. Job insecurity is related to poor mental health in both groups, while positive correlation of perceived employability and mental health was found only in public sector. Moderating effect of perceived employability on the relationship between job insecurity and mental health was found among public sector workers.

Discussion The results have shown significant differences in experiences of job insecurity, perceived employability and their relation to workers' mental health between sectors. In public sector, perceived employability was recognised as a moderator that can buffer the negative effects of job insecurity on mental health. This finding can have practical implications. In private sector, significantly higher level of job insecurity has been found, while there was no relationship between perceived employability and mental health. Possible explanation is that industrial workers are one of the most vulnerable groups in the labour market. On average they are less educated, dependant on their job, with fewer resources to cope job insecurity. Further investigation of other occupational groups within sectors should be conducted.

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A CROSS-SECTIONAL STUDY OF JAPANESE NON-PERMANENT WORKERS' MENTAL HEALTH

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Introduction The proportion of atypical employment has increased in Japan since the economic crisis of the 1990s. Previous studies have reported that non-permanent employees tend to be psychologically distressed. However, the relationship between occupational stress and non-permanent workers' mental health is unclear. We investigated their job stress and psychological distress.

Methods We surveyed 86 non-permanent employees at a municipal office using the Effort-Reward Imbalance Questionnaire, Kessler 6 (K6), and Job Content Questionnaire (JCQ). Employees were divided into two groups based on an effort-reward ratio (ER ratio) cutoff of 1, median reward scale scores (financial, esteem-related, and organisational reward), and median JCQ subscale scores (job demand, job control, and social support). We employed multi-way analysis of variance. In the first analysis, the dependent variable was the K6 score, and the independent variables were ER ratio, JCQ score, age, and gender. In the second analysis, we added three reward scales to the independent variables of the first analysis. The statistical significance level was set at 5%.

Result In the first analysis, the main effect of ER ratio was marginally significant [$F(1, 75)=3.08, p=0.0832$]. The least

square mean of K6 scores was 5.54 in the high-ER ratio group and 3.28 in the low-ER ratio group. In the second analysis, no main effect was observed.

Discussion We hypothesised that non-permanent employees with low ER ratios would have better mental health than those with higher ER ratios. The result of the first analysis did not support this hypothesis, although it suggests this tendency. The second analysis showed no relationship between external reward and psychological distress. Thus, avoiding ER imbalance can lead to good mental health. The study limitations include the cross-sectional design and the lack of information about marital status and education level. Therefore, further investigation should be conducted.

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SYNERGISTIC EFFECTS IN INDUCING DAMAGE TO THE AUDITORY FUNCTION – COMBINED EFFECT OF SMOKING AND OCCUPATIONAL NOISE EXPOSURE ON HEARING LOSS

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Introduction We aimed to prospectively assess the combined effect of smoking and occupational noise exposure on hearing loss.

Methods A prospective study was conducted using health check-up data collected between 2008 and 2015 in the Japan Epidemiology Collaboration on Occupational Health Study. The participants were 31 444 employees, who were aged 30–59 years, free of hearing loss at baseline. Smoking (never, former, or current) and occupational noise exposure (yes or no) were identified by a self-administered questionnaire at baseline. Major outcomes were high (hearing thresholds at 4 kHz >40 dB in at least one ear) and low (hearing thresholds at 1 kHz >30 dB in at least one ear) frequency hearing loss. Cox proportional hazards model was used to estimate the combined effect of smoking and occupational noise exposure on hearing loss, adjusting for covariates.

Results During follow-up (a median of 6 years), 2101 individuals developed high-frequency hearing loss, and 979 developed low-frequency hearing loss. Compared with never smokers who reported no exposure to occupational noise, the hazard ratio (95% confidence interval) for high-frequency hearing loss was 1.17 (1.01, 1.35) for past smokers without occupational noise exposure, 1.61 (1.43, 1.82) for current smoker without occupational noise exposure, 1.58 (1.32, 1.89) for never smokers with occupational noise exposure, 1.71 (1.39, 2.11) for past smokers with occupational noise exposure, 2.04 (1.75, 2.38) for current smoker with occupational noise exposure. For low-frequency hearing loss, the corresponding hazard ratios were 0.85 (0.68, 1.05), 1.08 (0.91, 1.29), 1.17 (0.92, 1.49), 1.06 (0.75, 1.48), 1.42 (1.13, 1.78). Dose response relationship between smoking intensity and hearing loss was observed in both people with and without noise exposure.

Conclusion Smoking is a risk factor for hearing loss, independent of occupational noise exposure, and its combined effect on hearing loss with occupational noise exposure is additive.