The development of practical recommendations for shift work, the definition of duration and intensity of night shift rotation and shift schedules significance, taking into account the individual characteristics of workers (for example, the chronotype), requires further studies, as well as the issue of potential carcinogenic risk of shift work.

Methods A cross-sectional study was conducted among 1357 male workers who works at an electrical manufacturer from April 2014 to January 2015. Body height and weight, smoking status and frequency of alcohol drinking were collected via annual medical check-up.

Sleep duration, chronotype, and other work- or life-related factor were collected through an additional questionnaire. Social jetlag (SJ) was calculated as the absolute difference between mid-sleep time on weekdays and weekends and were categorised into four groups. Logistic regression analysis was performed to estimate the odds ratio (OR) for 1) obesity (BMI ≥30 kg/m²) and 2) abdominal obesity (Waist circumference ≥90 cm) for each SJ category (SJ <1 hour as reference) with adjustments for demographic, work- and life-related factors. A P value<0.05 was considered significant. Data were analysed using SPSS Ver.22.0.

Results Extreme SJ category (≥3 hours) had significant high OR (95% confidence interval [CI]) of 1) obesity and 2) central obesity after controlling for age, presence of night shift work, chronotype, sleep duration. OR (95% CI) were 3.68 (1.49–9.11), and 2.48 (1.28–4.79), respectively. We found no impact of SJ on BMI or abdominal obesity after controlling for additional other variables.

Conclusion It was found that extreme social jetlag possibly associated with high OR of obesity or abdominal obesity, independent from sleep duration and chronotype. However, there were no associations between social jetlag and BMI or abdominal obesity, when we considered other life-style variables.