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Accumulation of psychosocial risk factors and prevalence of classic cardiovascular disease (CVD) risk factors and CVD incidence. Prospective cohort study within the Polish part of the HAPIEE study.

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Background: Psychosocial risk factors (PSRF) are inter-related and tend to cluster in individuals. They are associated with cardiovascular disease (CVD), however, in most studies their effect on CVD is assessed separately. Aim: To assess the relationship between accumulation of PSRF: low education, material deprivation, depressive symptoms and low perceived control and the prevalence of main CVD risk factors and with the risk of incident CVD. Methods: Cohort study with 11-year-follow-up was conducted. Random sample of 10,728 permanent residents of Krakow at age 45-69 was examined. Interview based on structured questionnaire was followed by physical examination and fasting blood sample collection. Education, material deprivation, perceived control and depressive symptoms were measured using standard tools. Index of accumulation of PSRF was calculated by summing up the number of 4 above-mentioned PSRF to which an individual was exposed. Classic CVD risk factors were defined according to European Society of Cardiology guidelines. Information on new CVD cases was obtained from the second screening and three postal questionnaires, confirmed by clinical diagnosis. Information on deaths with causes was obtained from local registry, Central Statistical Office and by interviewing participants’ families. Association between accumulation of PSRF and classic risk factors was assessed using logistic regression. Independent effect of accumulation of PSRF on CVD risk was assessed using Cox proportional hazard models. Results: Over 30% of the sample was not exposed to any PSRF, about 30% experienced one, further 20% were exposed to two PSRF, remaining 20% of participants were exposed to 3 of 4 PSRF. In 43,572 personyears of observation in men and in 51,773 personyears in women, 479 and 291 new CVD cases were registered, respectively. In women strong positive associations between accumulation of PSRF with clear dose effect were found with smoking, diabetes, physical activity, hypertension and obesity. In men only smoking, diabetes and physical activity were more frequent in participants exposed to 3 or 4 PSRF. After adjustment for age, compared to men unexposed to any PSRF, men with 3 or 4 PSRF had increased risk of incident CVD (HR=1.57 95%CI=1.15-2.14 and HR=2.24 95%CI=1.43-3.52, respectively). Further adjustment for marital status, SCORE risk, body mass index and diabetes reduced the estimates which became insignificant, nevertheless the linear trend was still observed (p=0.018). In women in fully adjusted model second PSRF increased risk of CVD by 70% (HR=1.70 95%CI=1.14-2.54) and exposure to 3 or 4 PSRF yielded over 2-fold higher risk of incident CVD (HR=2.3995%CI=1.57-3.63 and HR=2.08 95%CI=1.14-3.81, respectively). Conclusion: Accumulation of PSRF is associated with greater number of classic risk factors in women and substantially increases the risk of incident CVD. In men the association between PSFR and CVD incidence was largely attenuated by covariates.