The Effects of Acute and Chronic Mental Stress on Cardiac Function

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Objectives The main objective of this study is to investigate the effects of chronic and acute stress on blood pressure, heart rate variability and an indicator of cardiac contractility. The study also aims to describe the degree to which various demographic and lifestyle factors modify the observed effect.

Method Chronic stress was assessed with a validated questionnaire, the Perceived Stress Scale. Acute stress was the level of stress experienced from the performance of a simple mental challenge on a scale from 1-100. Heart rate variability is calculated from heart rate measurements recorded via a heart rate monitor. Cardiac contractility index is derived from the amplitude ratio of the first to second heart sounds, as recorded with an electronic stethoscope. Measurements for each of the parameters were taken before and after performance of the task. Pre-task measurements were used as baseline data and related to reported chronic stress levels. Acute stress levels were compared with the difference between pre- and post-task cardiac measurements.

Results Average acute stress level was 17/100. A statistically significant increase in cardiac contractility index was found for acute stress, while no significant change in either HRV or heart rate was noted. Subjects with high chronic stress showed a significantly reduced cardiac contractility than those with low chronic stress, while no difference in HRV was found between groups.

Conclusions Acute and chronic stress exert different inotropic effects on the heart, while no chronotropic effect was observed.

Workplace Violence and Depressive Symptomatology Among Police Officer

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Objectives The prevalence of depression in police officer is higher than in the general population. Police officers are often exposed to workplace violence, long time work, shift work and other psychosocial stressors. This study was conducted to evaluate the occupational factors associated with depressive symptomatology in police officer.

Method The study sample was 7476 police officers. A structured questionnaire was used to assess exposures to violence, shift working with jobs, health behaviours and sociodemographic factors. Subjects with depressive symptomatology was who experienced depressive symptom for continuously for more than 2 weeks within last 1 year. And chronic work place violence exposed subjects was who experienced threat or complaint from work related people more than 4 times per week.

Results Prevalence of depressive symptom among subjects was 35.5% (n = 2622) and higher in subjects exposed to chronic violence. After adjusting covariates, the odds ratio of depression was 2.01 (95% CI; 1.80–2.25) for chronic work place violence exposed subjects (n = 2005, 27.11%), 2.25 (95% CI; 1.96–2.69%) for shift working subjects (n = 6270, 85.68%).

Conclusions Our findings support the association workplace violence exposure between depressive symptomatology. Further study with more detailed work place violence exposure classification and measurement is need to confirm the association workplace violence and depressive symptomatology.