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INFLUENCE OF CHRONIC STRESS, DISCRIMINATION AND CHILDHOOD ADVERSITY ON THE CORTISOL AWAKENING RESPONSE AND ACUTE STRESS RESPONSE IN INDIGENOUS AND NON-INDIGENOUS UNIVERSITY STUDENTS

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Introduction: Indigenous peoples globally experience mental disorders at higher rates compared to the general population. Recently, alterations in neural stress processing have been studied as potential biological mechanisms underlying this health gradient. Here, we report on an integrative study of neuroendocrine regulation and stress processing and their psychosocial determinants.
Methods: We recruited 26 individuals of Indigenous Australian ancestry and 26 non-Indigenous individuals matched for aged and gender from a university setting. We assessed cortisol awakening response (CAR) by collecting saliva samples across three weekdays. In a separate experiment, we tested neuroendocrine and autonomous reactivity to a psychosocial stress paradigm (Trier Social Stress Test, TSST) using salivary cortisol and heart rate variability (HRV). Chronic stress (K6, PSS), childhood adversity (MAES), racism (MIRE), and general psychopathology (HSCL) were assessed to test the relationship between these variables and neuroendocrine measures.
Results: Relative to non-Indigenous participants, Indigenous participants had a flatter CAR. Interestingly, while in non-Indigenous participants chronic stress predicted a high CAR, the opposite relationship was found in Indigenous participants. We observed significantly lower time-domain measures of HRV in Indigenous participants. Frequency domain indices of HRV showed poorer recovery from stress in Indigenous participants, which was predicted by childhood adversity and internalized racism. Adverse childhood events were associated with blunted cortisol response to in the TSST in Indigenous participants.
Conclusion: Altogether our results demonstrate differential HPA-axis regulation and autonomic response to acute psychosocial stress in a sample of Indigenous Australians. Psychosocial variables differentially affected HPA-axis and stress response in Indigenous and non-Indigenous participants.

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COGNITIVE FUNCTIONING IN CORONARY ARTERY DISEASE PATIENTS: ASSOCIATIONS WITH THYROID HORMONES AND N-TERMINAL PRO-B-TYPE NATRIURETIC PEPTIDE

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Introduction: We have recently showed that altered thyroid function and increased rates of N-terminal pro-B-Type natriuretic peptide (NT-pro-BNP) are highly prevalent in coronary artery disease (CAD) patients with heart failure, and are associated with unfavorable prognosis. The aim of the current study was to determine whether cognitive functioning of CAD patients is related with thyroid hormones (FT3, TT3) and NT-pro-BNP.
Methods: In total, 278 patients were enrolled in the study; 206 (74.1%) men; mean age of 58 years (SD=9). Patients were evaluated for demographic, clinical risk factors FT3, TT3, NT-pro-BNP levels. Mini-Mental State Examination was administered to evaluate patients' general mental status. Digit Span Test and Digit Symbol Test were used to assess auditory attention, mental flexibility, psychomotor performance and incidental learning. Trail Making Test A (TMT-A) was used to measure perceptual speed. Depressive symptoms were assessed with Hospital Anxiety and Depression scale. Data on NT-pro-BNP levels were not normally distributed and were natural-log transformed (ln).
Results: Univariate linear regression analysis revealed that FT3, TT3 and (ln)NT-pro-BNP were associated with almost all cognitive functioning measures of CAD patients. After adjusting for possible confounders, higher FT3 concentrations were independently associated with less time which individuals took to complete the Digit Symbol Test (β=-.175, $p<.022$) and less time to complete TMT-A (β=-.173, $p<.033$). Following the same adjustment (ln)NT-pro-BNP was also associated with TMT-A (β=-.142, $p<.019$).
Conclusions: Higher FT3 concentrations are associated with better psychomotor performance in CAD patients while NT-pro-BNP might worsen perceptual speed, independently from clinical risk factors and depressive symptoms.

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HOW CAN THE STRESS-DRIVEN DEPRESSION OF THE ELDERLY PEOPLE BE HANDLED EFFECTIVELY ? - EMPHASIS ON THE INTELLIGENT DECISION SUPPORT BY GENERAL BAYESIAN NETWORK

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Introduction: Elderly people are known to have a certain level of stress and depression. However, the recent health literature fails to demonstrate how stress affects depression levels for elderly people. Besides, health professionals need high quality decision support mechanisms with which they can conduct what-if and goal-seeking analyses to effectively assist the elderly people in handling their depression and stress as well in their daily lives.
Methods: We adopted a GBN (General Bayesian Network) to design a high quality of decision support mechanism for the sake of health professionals who care for elderly people. In this sense, we adopted GBN to provide experts-friendly decision support to health professionals. A total of 1,066 elderly people in KNHANES (Korea National Health and Nutrition Examination Survey) from 2008 to 2013 were selected for our empirical analyses. Explanatory variables for our study were carefully selected out of extensive literature survey. We adopted six years of KNHANES dataset, indicating that our results were based on long period of time capable of considering temporal patterns in the depression in the elderly.
Results: After implementing the proposed GBN-driven inference engine by using the KNHANES dataset, we successfully experimented what-if and goal-seeking analyses to see how the proposed mechanism can handle the complicated depression-and-stress problems for the elderly people. For example, what-if analysis was used to analyze the rate of the elderly experiencing depression by the degree of stress level when the elderly have chronical disease and activity limitations.