

Evaluation of environmental effects of heavy metals on biochemical profile and oxidative stress among children at brick kiln sites

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Abstract: The present study was designed to determine the possible effects of brick kiln emissions on the body mass index (BMI), biochemical and stress profile, genotoxicity and hormone levels of children working at brick kiln industries. A survey was conducted, questionnaires were filled out, and demographic data were collected from Punjab, Pakistan. BMI was calculated, and heavy metals analysis, hematological and enzyme analysis, comet assay and hormonal ELISA for cortisol were performed. The results showed decreased BMI, RBC count, hematocrit, MCH and MCHC in the exposed group. Nickel, cadmium, zinc and chromium concentrations in whole blood were significantly higher among industry children. Antioxidant enzymes catalase, sodium dismutase and guaiacol peroxidase levels were decreased, while reactive oxygen species increased in the exposed group. Plasma cortisol level increased, while growth hormone concentrations decreased in the exposed group when compared with controls. In the comet assay, a decrease in percentage DNA in the head and an increase in percentage DNA in the tail were observed in the exposed group. It was concluded that children living at brick kiln sites and exposed to experienced decreased BMI, antioxidant enzymes status, altered hormone levels and cellular DNA damage.

Biography

Miss Mehwish David has completed her Masters and Mphil degree from Quaid-i-azam University and is currently doing PhD from from Quaid-i-azam University, Department of animal Sciences. She is teaching as a visiting lecturer of Zoology at Taxilla Institute of asian Civilization, Quaid-i-azam University for the last two years. She has been working to achieve sustainable development goal (SDG) number 3 which states *"Ensure healthy lives and promote well-being for all at all ages"* with focus on different persistent and emerging reproductive health issues. Se has been the member of Endocrine society since 2017. She has published many research articles in reputed journals and has been serving as an editorial board member of reputed journals such as Toxicology and Inductrial health, Acta Scientific Pediatrics.

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