

Impact of Neurotoxicants on the Physical Development of Children

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Abstract

The present study was undertaken to assess the impact of neurotoxicants on the physical development of children aged 6-7 years in two eco-settings of Ludhiana city of the Punjab State in India. The locality around industrial area was termed as neurotoxicant polluted setting (NPS) and the locality away from the industrial area was termed as neurotoxicant free setting (NFS). The sample comprised of 240 children aged 6-7 years (belonging to low socio-economic status, born and brought up in the specified setting and not of migrant family), randomly taken from the Government schools located in the two settings. Out of these 240 children, 120 each were drawn purposively from the two eco-settings. Standard instruments (anthropometer, weighing balance and fiberglass measuring tape) and procedures were used for anthropometric assessment. The results showed children of NPS to be better in weight whereas those of NFS were better on height. They were almost similar with respect to their head circumference.

Key Words: Environmental Pollution, Lead Poisoning, Health, Anthropometry, Weight, Height

Introduction

Children are partly the products of the environment both material and non-material, consequently any change in it is likely to affect them. Concern is being expressed to the increase in environmental pollution that is releasing potentially dangerous chemicals or toxicants in the air the children breathe, water they drink and land they live on. Of the various toxicants, childhood lead poisoning is now recognized as the number one preventable global environmental disease of children. Lead poisoning affects children's health and development, especially in densely populated urban and industrial cities. Even a low-to-moderate level of lead poisoning results in neuromotor problems (Sciarillo & Alexander, 1991). In the presence of underlying iron deficiency, the absorption of lead from various sources increases (Wasserman et al., 1994), thus aggravating the toxic effects of lead. Besides lead, other neurotoxicants like copper, selenium, arsenic etc. also affect the development of children. In addition, if the child is from

low socio-economic status, neurotoxicants have an even more damaging effect on him/her as his immediate home environment is already deficit because of poverty.

Ludhiana, the industrial capital of Punjab in India, has a large share of industrial pollutants and effluents from industries such as hosiery, textile, spare parts, cycles, dyeing, sewing machines, auto parts, chemicals and vegetable hydrogenated fats. The impact of neurotoxicants on the physical development of children of the city was studied.

Materials and Methods

The study is based on a sample of 240 children aged 6-7 years, randomly drawn from the Government schools located in the two eco-settings of the Ludhiana district of the Punjab State in India. Neurotoxicant polluted eco-setting (NPS) was adjoining the industrial area and neurotoxicant free eco-setting (NFS) was about 15-20 km from the industrial area. The drinking water samples' qualitative