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ABSTRACT BOOK

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Nutritional State and Neurocognitive Performance of Early Female Adolescents in Galle Municipal Area

Madhurshanthi HJH[1], Wimalasekera SW[2], Goonewardena CSE[3], Lenora RSJ[4], Amarasekara RAH[5]

[1]Allied Health Science Degree Programme, Faculty of Medicine, University of Ruhuna, Sri Lanka

[2]Department of Physiology, [3]Department of Community Medicine, [5] Departments of Allied Health Sciences, University of Sri Jayewardenepura, Nugegoda, Sri lanka

Background: Nutrition is crucial for cognitive development and female adolescents are nutritionally vulnerable due to specific reasons as onset of menarche, higher requirement for growth, changes in eating pattern, life style, and risk taking behaviors.

Objective: To determine the association of nutritional status with neurocognitive functions of early female adolescents.

Methods: Cross - sectional school based study was conducted on female adolescents (11 - 14 years, n = 200). Weight, height, waist and hip circumference were measured to assess protein energy nutritional status. Tricep, bicep and subcapsular skin fold thickness (SFT) were measured to assess fat mass. Neurocognitive function was assessed with Wechsler Intelligence Tests for Children (WISC), Tests Of Nonverbal Intelligence (TONI 3) and computerized executive function tasks. Data were analyzed by comparison of means by one way ANOVA.

Results: The nutritional categories of the sample were, normal growth (N) (29.5%), underweight (UW) (62.5 %) and overweight (OW) (8%). Mean Processing Speed Index (PSI) was significantly differed between normal 99.60(SD ±12.0) and overweight groups (93.33 SD ± 41.7) ($p<0.01$). Mean Working Memory Index (WMI) of normal, underweight and overweight group were 104.02 (SD ±12.0), 85.40 (SD ± 9.73) 92.75(SD ±11.24) respectively and working memory of underweight group is significantly lower than normal group ($p<0.01$). Abstract reasoning and executive function (inhibition and visuo spatial fluency) performances were not associated with nutritional state ($p>0.05$).

Conclusion: Elevated BMI is negatively associated with processing speed and undernutrition is a risk factor for reduced working memory performances of female adolescents. Matured neural pathways in early delayed adolescence may contribute to the results observed in this population.