

## **A Preliminary Study on the Cardiovascular Disease Risk among Overweight & Obese Adolescents Attending National Schools in Jaffna Zonal Division**

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Cardiovascular disease (CVD) risk factors are present to a significantly greater degree in the subset of overweight and obese individuals. This study assessed the cardiovascular disease risk factors among overweight and obese adolescents aged 10-19 years attending National schools (*n*4) of Jaffna zonal division. A cross sectional study was carried out and 120 overweight & obese students were selected. Among the 120 students, 45 (37%) have responded. Anthropometric measurements (height, weight and waist and hip circumference) were measured. The Body Mass Index (BMI)-for-age was used to derive overweight (BMI-for-age  $>+1SD$ ) and obese (BMI for age  $>+2SD$ ) adolescents. Fasting plasma glucose, insulin, triacylglycerol (TAG), Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL) and Total Cholesterol (TC) level were measured. Insulin resistance test was performed by using HOMA-IR calculator. Of the total of 45, 19 (42.2%) were males. The mean ( $\pm SD$ ) values of waist circumference for males and females were 92.92 ( $\pm 5.89$ ) and 87.48 ( $\pm 8.36$ ) cm respectively with significant difference ( $p < 0.05$ ). Mean ( $\pm SD$ ) value of the insulin resistance was 2.86 ( $\pm 1.54$ ) {[2.76 ( $\pm 1.28$ ) in males and 2.93 ( $\pm 1.72$ ) in females] ( $p < 0.05$ )}. Among the 45 students, 8 (26.67%) students had high insulin resistance ( $\geq 3.25$ ) [5 (26.32%) males and 7 (26.92%) females]. Mean value of TAG was significantly high in females [99.51 ( $\pm 44.88$ ) mg/dL] than in males [77.81 ( $\pm 38.14$ ) mg/dL] ( $> 0.05$ ). Among them, 7 (15.6%) had hypertriglycerolaemia [1 (5.26%) males and 6 (23.8%) females]. Females [108 ( $\pm 51.8$ ) mg/dL] had significantly high LDL levels than males [76.8 ( $\pm 36.8$ ) mg/dL] ( $< 0.05$ ). High LDL levels were observed in 4 (8.9%) students [1 (5.26%) male and 3 (11.54%) females] while Low HDL levels in 8 (17.8%) students [4 (21.5%) males and 4 (15.38%) females]. Total cholesterol level was high in females [222.4 ( $\pm 26.7$ )] than in males [185.5 ( $\pm 27.5$ )]. Among the students, 3 (6.67%) had hypercholesterolaemic level. This study revealed that, CVD risk factors are high in overweight and obese adolescent students who attending National schools of Jaffna zonal division. Female students have shown more CVD risk than male students.

**Keywords:** Insulin resistance, HOMA-IR, Lipid profile, BMI-for-age, Adolescents