



# PREVALENCE OF NON-ALCOHOLIC FATTY LIVER DISEASE AND ITS RISK FACTORS IN AN URBAN ADOLESCENT COHORT IN SRI LANKA

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## INTRODUCTION

NAFLD is the most common liver disease in 2-19 year old children and is increasing worldwide. The main driver is the growing obesity epidemic<sup>1</sup>. The spectrum of disease ranges from benign steatosis to Non Alcoholic Steatohepatitis (NASH) which can progress to cirrhosis. High prevalence of non-alcoholic fatty liver disease (NAFLD) is reported among adults of Sri Lanka. Although limited data on childhood obesity is available, community prevalence of NAFLD and its risk factors among adolescents is unknown.

## OBJECTIVE

We investigated the prevalence and risk factors for NAFLD in an urban adolescent birth cohort in Sri Lanka.

## METHOD

The study population consisted 14 year-olds, belonging to the birth cohort born in 2000, residing in the Ragama Medical Officer of Health area. NAFLD was diagnosed based on established ultrasound criteria. Anthropometric measurements, blood pressure (BP) and total body fat distribution (TBF) estimates were made. Fasting blood sugar, serum insulin, fasting serum lipid and serum alanine aminotransferase (ALT) levels were measured. Independent predictors of NAFLD were determined by multivariate analysis

Table 1 – Definitions <sup>2,3</sup>

Term	Definition
Obesity	BMI Males 27.63 Females 28.57
Abnormal body fat distribution	Waist circumference $\geq 76.1$ cm males $\geq 70$ . cm females
Elevated systolic BP	SBP $\geq 130$ mmHg or on treatment for Hypertension
Elevated diastolic BP	DBP $\geq 85$ mmHg or on treatment for Hypertension
Raised triglyceride (TG)	$\geq 1.7$ mmol/L ( $>150$ mg/dl)
Low HDL	$<1.03$ mmol/L ( $<40$ mg/dl)
Raised ALT	Over the upper limit of normal

**RESULTS:** Of the 508 adolescents [263 (51.8%)girls] participated in the study, 44 (8.7%) had NAFLD [22 (8.4%)girls]. Forty six (18.8%) boys and 54 (20.5%) girls had a BMI above the equivalent of 25 kgm<sup>2</sup>in adults. Forty four (17.1%) boys and 77 (29.3%) girls had elevated TBF. On multivariate analysis, having an elevated BMI [OR = 10.1 (95% confidence interval: 3.9-29.2) and elevated TBF [OR = 4.4 (95% confidence interval: 1.5-12.8) were independently associated with NAFLD.

Table 2 – Demographic features of participants with and without NAFLD

	With NAFLD (n =44)	Without NAFLD (n=462)	Significance
Boys	22	222	Chi sq = 0.0611 p=0.805
Girls	22	240	

Table 3 – Association between the presence of NAFLD and risk factors

Risk Factor	With NAFLD (n= 44)	Without NAFLD (n=462)	Odds Ratio	Adjusted OR	95%CI of Adjusted OR	
Obesity	7	2	43.51	20.20	3.06	133.33
high waist circumference	36	98	16.71	13.63	5.85	31.77
Elevated systolic BP	1	7	1.51	0.10	0	2.71
Elevated diastolic BP	0	5	0	1	ns	
Raised triglyceride	6	27	2.54	1.8	0.54	6.04
Low HDL	0	1	0	1	ns	
Raised ALT	10	9	14.8	6.61	2.09	20.94

Ns-not significant Raised ALT=SGPT>30

**Conclusion:** The prevalence of NAFLD among adolescents in this urban Sri Lankan community is strongly associated with obesity and abnormal TBF. Our findings emphasize the need to address these risk factors through preventive and screening programs.

## References

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