



Undergraduate.

## Introduction

Healthy Eating Index (HEI) is one of the commonly-used indicators for assessing dietary quality [1]. There is a continuing need to examine the relationship between the Health Eating Index (HEI) and abdominal obesity especially among aboriginal children.



This study aimed to determine the relationship between HEI and abdominal obesity among aboriginal children.

**Study design:** Analytical cross-sectional

- Lufkin's tape
- WC percentile chart [2]

**Study population:** Primary school aboriginal children & respective parents

Study instruments

- SFFQ
- Nutritionist Pro

**Study location:** 3 primary schools in Negeri Sembilan

## Methodology

Abdominal obesity status [2]

HEI component score (HEIcs)

Cereal & grains, vegetables, fruits, meat, poultry & eggs, fish & seafood, legumes, dairy, fat percentage sodium percentage

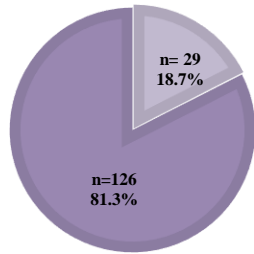
Total HEI score (HEIs) [3,4,5]

Data analysis (SPSS)

- Descriptive statistics
- T-test
- ANOVA
- Correlation
- Chi-Square test

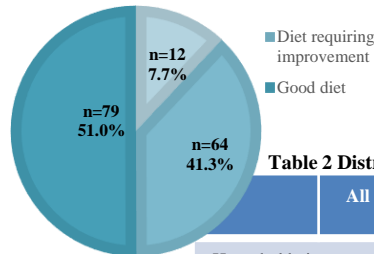
## Results

**Fig.1: Prevalence of abdominal obesity.**



■ Abdominally obese ■ Normal

**Fig 2: Diet quality based on HEI.**



**Table 1: Mean analysis of study variables.**

Study variables	Mean±SD
Waist circumference (cm)	63.4±10.7
Total HEI score (%)	77.2±16.6

**Table 2 Distribution of Total HEI score across household size.**

Household size	All n (%)	Total HEI Score Mean (SD)	t	p
≤5	71 (45.8%)	74.8±18.1	1.626	0.046*
>5	84 (54.2%)	80.1±14.3		

**Table 3 Distribution of waist circumference across age group.**

Age (years)	All n (%)	Waist circumference Mean (SD)	t	p
7-9	50 (32.3%)	57.0±6.6	-6.641	<0.001*
10-12	105 (67.7%)	66.5±11.0		

**Table 4: Association between HEI and abdominal obesity.**

HEI status	Abdominal obesity status n (%)	X <sup>2</sup>	p	
Poor diet (<51%)	1 (0.64%)	11 (7.09%)	1.322	0.516
Diet requiring improvement (51-80%)	14 (9.03%)	50 (32.26%)		
Good diet (>80%)	14 (9.03%)	65 (41.94%)		

- The prevalence of abdominal obesity was 18.7%.
- Based on HEI, 49.0% of children had diet that requires improvement ( $\Sigma$ HEIs<80).
- The mean waist circumference (WC) was 63.4 cm.
- The mean Total HEIs was 77.2%.
- The mean value of total HEIs was significantly higher in children lived in a bigger household size
- Older children (10-12 years) had significantly higher WC.
- No significant association was found between HEI and abdominal obesity.

## Discussion

Prevalence of abdominal obesity in this study was found to be higher than a study (11.3%) conducted among Malaysian suburban adolescents [6]. This study revealed mean WC that was higher than rural children of the same age (mean=59.6cm) by Poh *et al.* (2013). The mean value of total HEIs was higher compared to the score reported in other local studies conducted among aboriginal women [8] and children [9], possibly indicating an improved diet quality as a result of governmental effort. Children lived in bigger household size had better diet quality which may possibly due to bigger variations of food preferences in bigger size family which resulted a more balanced food options. Our finding that showed WC significantly increased with age was in accordance with a study conducted among general Malaysian children population [2]. Our study showed HEI was not significantly associated with abdominal obesity among aboriginal children which was similar to a study by Appannah *et al.* 2020. This is the first study conducted to assess the HEI and WC specifically among primary-school aged in Malaysian aboriginal children.

## Conclusion

HEI provides comprehensive assessment of diet quality; however, not in relation with abdominal obesity among aborigine children. Longitudinal studies are needed to evaluate whether HEIs predicts risk of abdominal obesity among aboriginal children.

## References

- [1] Gil, A., De Victoria, E. M. and Olza, J., 2015. Indicators for the evaluation of diet quality. *Nutrition. Hospitalaria*, 31, 129-144.
- [2] Poh, B., Jannah, A., Chong, L., Ruzita, A., Ismail, M. and McCarthy, D., 2011. Waist circumference percentile curves for Malaysian children and adolescents aged 6.0-16.9 years. *International Journal of Pediatric Obesity*, 6(3-4), 229-235.
- [3] Lee, T.T., Norimah, A. K. and Safiah, M. Y., 2011. Development of Healthy Eating Index (HEI) for Malaysian adults. *In proceedings of the 26th scientific conference and annual general meeting of the Nutrition Society of Malaysia [Online]*. Kuala Lumpur, Malaysia. Available at: <https://www.researchgate.net/derf/http%3A%2F%2Fwww.nutrisweb.org.my%2Fdownloads%2FNSM%2520and%2520Conference%2520Prog%2520%26%2520Abstract%2520Book.pdf> [Accessed 4 July 2020]
- [4] Goh, H.W. and Norimah, A.K., 2012. Validation of Healthy Eating Index (HEI) for Malaysian adults. *In: 27th scientific conference of the Nutrition Society of Malaysia [Online]*. Kuala Lumpur, Malaysia. Available at: <https://www.researchgate.net/derf/http%3A%2F%2Fnutriweb.org.my%2Fdownloads%2FNSM%2520and%2520abstract%2520combined.pdf> [Accessed 4 July 2020].
- [5] MOH, 2013. *Malaysian Dietary Guidelines for children and adolescents :Summary*. Ministry of Health Malaysia.
- [6] Chew, W., Leong, P., Yap, S., Yasmin, A., Choo, K., Low, G. and Boo, N., 2018. Risk factors associated with abdominal obesity in suburban adolescents from a Malaysian district. *Singapore Medical Journal*, 59(2), pp.104-111.
- [7] Poh, B., Ng, B., Siti Haslina, M., Nik Shanita, S., Wong, J., Budin, S., Ruzita, A., Ng, L., Khouw, I. and Norimah, A., 2013. Nutritional status and dietary intakes of children aged 6 months to 12 years: findings of the nutrition survey of Malaysian children (SEANUTS Malaysia). *British Journal of Nutrition*, 110(S3), pp.S21-S35.
- [8] Chong, S., Appannah, G. and Sulaiman, N., 2019. Predictors of diet quality as measured by Malaysian Healthy Eating Index among aboriginal women (Mah Meri) in Malaysia. *Nutrients*, 11(1), pp.135.
- [9] Chua, H., Ali, A., Zakaria, N. and Mohd Yusof, H., 2018. Assessment of diet quality and its association with nutritional status among fishermen's children in Terengganu. *Malaysian Applied Biology*, 47(6), pp.137-144.
- [10] Appannah, G., Emi, N., Ahmad Yusin, N., Gan, W. and Mohd Shariff, Z. et al., 2020. Evaluation of dietary quality using Malaysian Healthy Eating Index and its relationships with cardiometabolic risk factors in Malaysian adolescents. *Malaysian Journal of Medicine and Health Sciences*, 16(SUPP6), pp.46-55.

## Acknowledgement

We thank the Department of Orang Asli Development (JAKOA) in granting approval for this study, and UCSI University for supporting the funding of this study. This project is conducted under UCSI SHINE initiative