The Interrelation Between Dietary Habits and Appetite Hormone Levels in Children

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Introduction

- Diet is one of the many factors that can influence appetite hormone levels [1].
- There is insufficient research completed on the relationship between diet and appetite hormone levels, especially in young children.
- Clarifying this relationship will help provide a greater insight towards long-term effective weight management and potential therapeutic methods to ameliorate the growing issue of childhood obesity.
- According to the World Health Organisation in 2021 [2], there are 39 million children with obesity worldwide, with the prevalence continuously increasing.
- The aim of the study was to examine the relationship between dietary habits and appetite hormone levels in children.

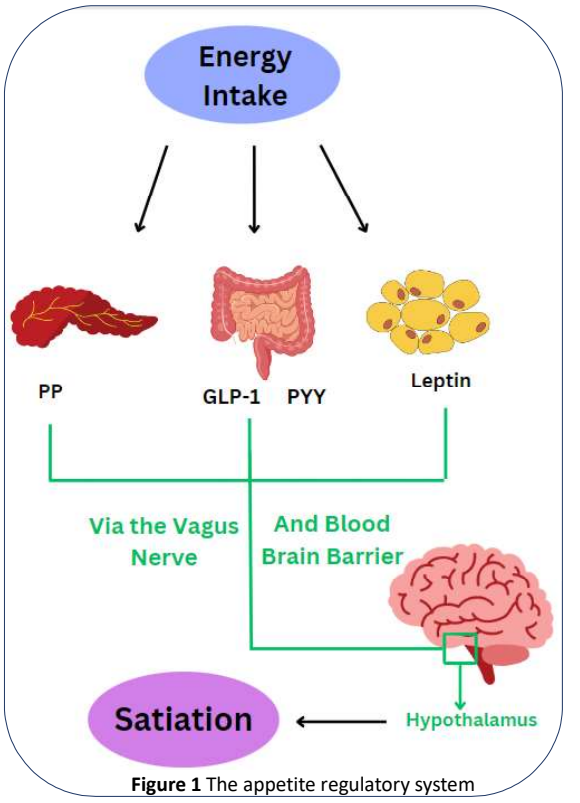

Figure 1 The appetite regulatory system

Methodology

Study Design
- Blood samples taken to measure appetite hormones levels of GLP-1, PYY, PP and leptin.
- Demographic data collected (n=312) – age, sex, z-score BMI (zBMI) and social economic status (SES).

Dietary Habits
- A 12-item Mediterranean diet assessment tool measured dietary habits.
- This was adapted from a previously validated 14-item Mediterranean diet assessment tool [3].
- Mediterranean diet score was calculated according to 3 categories (low = ≤3, medium = 4-7, high = ≥8 points).

Statistical Analysis
- IBM SPSS Statistics version 28.0 was used.
- Spearman correlations and multiple linear regression models were the tests used to examine the relationship between the confounders, Mediterranean diet score and each appetite hormone.

Results

Table 1 – Spearman Correlations between the four appetite hormones GLP-1, PYY, PP and Leptin.

	GLP-1	PYY	PP	LEPTIN
GLP-1	-	0.01	-0.01	-0.03
PYY	0.01	-	0.06	0.16*
PP	-0.01	0.06	-	-0.26**
LEPTIN	-0.03	0.16*	-0.26**	-

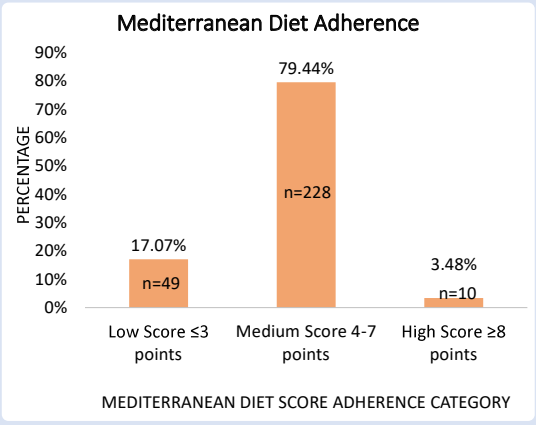

Figure 2 Bar chart representing participants adherence to the Mediterranean diet score.

Table 2 – Multiple Linear Regression Adjusted Model for Sex, Age, zBMI and SES including standardised coefficient Beta values, *p* values and Spearman Correlations for r values.

	GLP-1			PYY			PP			LEPTIN		
	β*	*p*	r	β*	*p*	r	β*	*p*	r	β*	*p*	r
SEX	.15	.07	.05	-.03	.76	-.04	.24	<0.001**	.22	-.32	<0.001**	-.36
AGE	-.51	.52	-.09	-.03	.76	-.08	-.00	.97	-.06	.13	.02*	.10
ZBMI	-.09	.38	.04	.21	.06	.13	-.17	.05*	-.06	.42	<0.001**	.40
SES	.03	.66	.04	.03	.74	.06	.15	.02*	.16	-.12	.03*	-.12
MEDITERRANEAN DIET SCORE	.03	.68	.03	.02	.85	.06	.09	.14	.06	-.48	.36	.04

Discussion and Conclusion

- No significant association was found between the Mediterranean diet score and appetite hormone levels.
- Other associations between appetite hormone levels and confounding factors were acknowledged.
- Appetite hormone levels and dietary habits should be explored in greater detail to determine how the long-term effects of a particular diet can influence appetite hormone levels.
- Children need to be a greater focus of research as it is essential to identify modifiable risk factors in early life so that solutions and interventions can be established to help tackle the global obesity crisis.

References

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