



# BODY ADIPOSITY STATUS IN RELATION TO DENTAL CARIES EXPERIENCE AMONG PRESCHOOL CHILDREN IN HONG KONG

Si Min Peng<sup>1\*</sup>, Hai Ming Wong<sup>1</sup>, Nigel M. King<sup>2</sup>, Colman McGrath<sup>1</sup>

<sup>1</sup>University of Hong Kong, Hong Kong SAR, China

<sup>2</sup>University of Western Australia, Perth, Australia

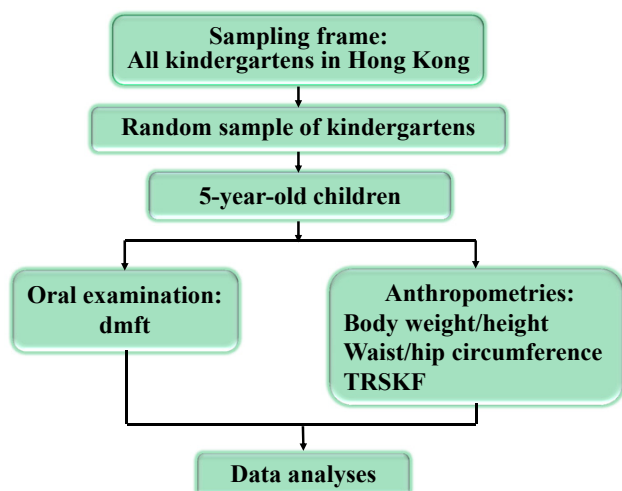


## Introduction:

Both dental caries and obesity are highly prevalent chronic conditions. Currently, the research on the relationship between dental caries experience and adiposity status is producing mixed and inconclusive data. This study aimed to investigate the association between dental caries experience and adiposity status – general, central, and peripheral obesity among a community sample of 5-year-old children in Hong Kong.

Abbreviations: W/H, weight-height ratio; BMI, body mass index, WC, waist circumference; WHR, waist-hip ratio; TRSKF, triceps skinfold thickness

## Methods:



## Results:

The response rate was 83.1% (n = 324/390). Caries experience (dmft > 0) was recorded for 75.3% (n = 244) of the children. Bivariate analyses ascertained that gender and parents' educational attainment were the key socio-demographic factors associated with dental caries experience as well as with adiposity status. W/H, BMI, and WC were associated with dental caries experience (Table 1). Logistic regression analyses identified that dental caries experience was associated with adiposity status controlling for oral health behaviour and socio-demographic factors. W/H z-score was associated with caries experience (dmft > 0), OR = 1.41, 95% CI 1.04, 1.91, P = 0.03; and 'very high' caries (dmft ≥ SiC<sup>10</sup> Index value), OR 1.62, 95% CI 1.05, 2.50, P = 0.03. In addition, WC z-score was associated with 'very high' caries experience (dmft ≥ SiC<sup>10</sup> Index value), OR 1.72, 95% CI 1.06, 2.81, P = 0.03 (Table 2).

Table 1. Associations between dental caries experience and the adiposity (general, central, and peripheral).

Variable	n (%)	W/H		BMI		WC		WHR		TRSKF	
		mean (SD)	P-value	mean (SD)	P-value	mean (SD)	P-value	mean (SD)	P-value	mean (SD)	P-value
<b>Caries experience</b>			0.002**		0.048*		0.033*		0.785		0.368
dmft = 0	80 (24.7)	17.2 (1.8)		15.4 (1.4)		51.0 (5.1)		0.87 (0.07)		10.2 (2.4)	
dmft > 0	244 (75.3)	18.1 (2.4)		15.8 (1.8)		52.3 (4.8)		0.88 (0.05)		10.5 (3.3)	
<b>'High' Caries Experience</b>			0.047*		0.254		0.054		0.819		0.154
< SiC Index value	277 (85.5)	17.7 (2.2)		15.7 (1.6)		51.8 (4.8)		0.87 (0.05)		10.3 (2.9)	
≥ SiC Index value	47 (14.5)	18.5 (2.8)		16.0 (2.0)		53.2 (5.2)		0.87 (0.04)		11.2 (3.9)	
<b>'Very High' Caries Experience</b>			0.058		0.067		0.040*		0.444		0.128
< SiC <sup>10</sup> Index value	308 (95.1)	17.8 (2.2)		15.7 (1.6)		51.8 (4.7)		0.87 (0.05)		10.3 (2.9)	
≥ SiC <sup>10</sup> Index value	16 (4.9)	19.5 (3.3)		16.8 (2.2)		55.4 (6.4)		0.88 (0.04)		12.4 (5.2)	

P-value: 2 sample t-test. \*P-value < 0.05, \*\*P-value < 0.01.

Table 2. Logistic regression models of associations between dental caries experience and adiposity.

Variable	Unadjusted <sup>1</sup>			Adjusted <sup>2</sup>		
	OR	95 % CI	P-value	OR	95 % CI	P-value
<b>Caries Experience (dmft &gt; 0)</b>						
W/H z-score	1.47	1.10, 1.96	0.009**	1.41	1.04, 1.91	0.029*
WC z-score	1.33	1.01, 1.74	0.039*	1.26	0.94, 1.68	0.119
<b>'High' Caries Experience (≥ SiC Index value)</b>						
TRSKF z-score	1.33	1.00, 1.76	0.047*	1.15	0.85, 1.57	0.365
<b>'Very High' Caries Experience (≥ SiC<sup>10</sup> Index value)</b>						
W/H z-score	1.80	1.20, 2.71	0.005**	1.62	1.05, 2.50	0.031*
WC z-score	1.92	1.25, 2.95	0.003**	1.72	1.06, 2.81	0.029*

<sup>1</sup>Unadjusted: separate logistic regression analyses.

<sup>2</sup>Adjusted: adjusted for tooth brushing habit, snacking habits, parents' education attainment, household monthly income, and gender.

\*P-value < 0.05, \*\*P-value < 0.01.

## Discussion:

- It is evident that it is important to consider different types of obesity, as well as to consider the different indices for the assessment of each type of obesity to determine the association between obesity and dental caries experience.
- Not only general obesity but also central obesity are associated with dental caries experience in the primary dentition.
- Further study is warrant to support or refute the causal link/relationship.

## Conclusion:

Among this community sample of 5-year-old children in Hong Kong, dental caries experience was associated with general adiposity (as assessed by weight-height ratio) and central adiposity (as assessed by waist circumference).

Contact e-mail: tina\_pengsimin@yahoo.com