



# OUTSTANDING POSTER PRESENTATION AWARD

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## **Adolescents follow the healthy dietary habits of parents**

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**Background:** An unhealthy diet in adolescence predisposes to non-communicable diseases. Adolescents from underprivileged families are more vulnerable due to difficulties in securing a healthy food environment. This study aimed to explore family factors associated with unhealthy diets of adolescents.

**Methods:** A cross-sectional study included 248 adolescents aged 10 to 19 years and their parents. Participants completed three questions on dietary habits embedded in a health survey from 2016 February to 2017 April. The self-reported daily consumption of the number of servings of 1) fruits and vegetable (FV) and 2) sugar sweetened beverages (SSB) were measured. Family factors included household income, household size, as well as parental factors (daily consumption of FV and SSB, marital status, education, employment and health status of the primary carer). The effects of these family factors on the daily consumption of FV and SSB of adolescents were assessed by multivariate linear regression.

**Results:** Parents with older age and consumed less FV tended to be associated with lower consumption of FV in the adolescents ( $-0.136$ ,  $p=0.032$  and  $0.336$ ,  $p<0.01$ , respectively). Compared to families with monthly household income between HK\$10,000 to HK\$19,999 (reference), those with higher income had significantly less intake of SSB among the adolescents ( $0.281$ ,  $p=0.040$ ). After adjusting for covariates, there was a significant correlation in dietary consumptions between parents and adolescents for FV but not SSB ( $0.334$ ,  $p<0.01$  and  $0.110$ ,  $p=0.194$ , respectively). Compared to the reference household income, adolescents with household income below HK\$10,000 had a healthier consumption pattern with higher FV and lower SSB intake ( $0.598$ ,  $p=0.037$  and  $-0.454$ ,  $p=0.029$ , respectively).

**Conclusions:** There is a strong association between parent and adolescent daily consumption of FV but not SSB regardless of parental education and working status. Parents should therefore be the target of interventions to promote healthy eating for adolescents.

# Adolescents Follow the Healthy Dietary Habit of Parents

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## INTRODUCTION

An unhealthy diet in adolescence predisposes to obesity and non-communicable diseases. Adolescents from underprivileged families may be more vulnerable due to difficulties in securing a healthy food environment.

**Objective:** To identify family factors associated with unhealthy diets of adolescents.

## METHODS

**Design:** Cross sectional questionnaire survey

**Subjects:** 248 adolescents aged 10 to 19 years and their parents

Dietary data collected by three questions embedded in a health survey administered from 2016 February to 2017 April

**Outcomes:** Self-reported daily consumptions of the number of servings of 1) fruits and vegetable (FV) and 2) sugar sweetened beverages (SSB) in adolescents

**Family factors:** Household income, household size and parental factors (daily consumption of FV and SSB, marital status, education, employment and health status)

## Analysis:

The associations between the daily consumption of FV and SSB of adolescents and family factors were assessed by one-way ANOVA for continuous data, by chi-square test for categorical data, and by multivariate linear regressions for adjusted effect.

## RESULTS

### Subject characteristics

Table 1. Subject characteristics

	N=248
<b>Adolescents</b>	
Age, mean (SD)	12.44 (2.10)
Male, n (%)	121 (48.8%)
Servings of dietary consumption, mean (SD)	
FV	2.02 (1.27)
SSB	0.72 (0.83)
Adherence to dietary guideline, n (%)	
FV ( $\geq 5$ servings)	4 (1.6%)
SSB ( $\leq 1$ serving)	214 (87.7%)
<b>Household</b>	
Monthly household income, n (%)	
<HK\$10,000	32 (13.0%)
HK\$10,000 to 19,999	128 (51.8%)
$\geq$ HK\$20,000	87 (35.2%)
Household size, mean (SD)	
4 or below, n (%)	164 (71.3%)
Above 4, n (%)	66 (28.7%)
<b>Parents</b>	
Age, mean (SD)	43.00 (5.91)
Male, n (%)	14 (5.6%)
Servings of dietary consumption, mean (SD)	
FV	2.95 (1.52)
SSB	0.45 (0.71)
Adherence to dietary guideline, n (%)	
FV ( $\geq 5$ servings)	34 (13.8%)
SSB ( $\leq 1$ serving)	214 (89.2%)
Currently married, n (%)	199 (81.2%)
Education level, n (%)	
Primary or below	163 (66.8%)
Secondary	63 (25.8%)
Tertiary or above	18 (7.4%)
Currently working, n (%)	98 (40.2%)
Any morbidity, n (%)	
Diet-related (Diabetes/ CVD/ cancer)	28 (11.3%)
Mental	31 (12.7%)

### Associations between family factors & adolescent dietary habit

#### a) Univariate analysis

- Parents with older age and consumed less FV tended to be associated with lower consumption of FV in the adolescents (-0.14,  $p=0.032$  and 0.34,  $p<0.001$ , respectively).
- Compared to families with monthly household income between HK\$10,000 to HK\$19,999, those with higher income had significantly less intake of SSB among the adolescents (-0.28,  $p=0.040$ ).

#### b) Adjusted effect

Table 2. Adjusted effect of family factors on adolescent dietary habit

	Consumption of FV among adolescents (N = 247)			Consumption of SSB among adolescents (N = 244)		
	Coefficient	95% CI	P-value	Coefficient	95% CI	P-value
<b>Household</b>						
Monthly household income						
HK\$10,000 to 19,999	(reference)			(reference)		
<HK\$10,000	0.598	(0.036, 1.159)	0.037*	-0.454	(-0.861, -0.047)	0.029*
$\geq$ HK\$20,000	-0.055	(-0.418, 0.309)	0.767	-0.203	(-0.454, 0.049)	0.113
Household size						
4 or below	(reference)			(reference)		
Above 4	0.035	(-0.345, 0.415)	0.855	-0.083	(-0.350, 0.184)	0.541
<b>Parents</b>						
Servings of dietary consumption						
Currently married	0.371	(-0.110, 0.852)	0.130	-0.180	(-0.525, 0.165)	0.304
Education level						
Primary or below	(reference)			(reference)		
Secondary	-0.283	(-0.656, 0.091)	0.137	0.047	(-0.214, 0.307)	0.725
Tertiary or above	0.411	(-0.246, 1.068)	0.219	-0.182	(-0.652, 0.288)	0.445
Currently working	0.142	(-0.211, 0.495)	0.429	-0.093	(-0.340, 0.155)	0.462
Any morbidity						
Diabetes/ CVD/ cancer	0.033	(-0.544, 0.610)	0.910	-0.139	(-0.545, 0.268)	0.502
Mental illness	-0.152	(-0.658, 0.354)	0.554	0.285	(-0.074, 0.644)	0.119

## CONCLUSION

- There was a **strong association between parent and adolescent daily consumption of FV.**
- The reasons for healthier dietary patterns in adolescents with very low household income deserves further research.
- Parental role model** should be emphasized in the **promotion of healthy eating for adolescents.**