



UNIVERSITI PUTRA MALAYSIA

**FAMILIAL AND SOCIO-ENVIRONMENTAL PREDICTORS OF
OBESITY AMONG SCHOOL CHILDREN IN SELANGOR AND
KUALA LUMPUR**

SERENE TUNG EN HUI

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**MASTERS OF SCIENCE
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By

SERENE TUNG EN HUI

**This submission to the School of Graduate Studies, Universiti Putra Malaysia, in
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October 2010

Chairman: Shamarina Shohaimi, PhD

Faculty: Faculty of Science

A cross-sectional study was carried out to determine the familial and socio-environmental predictors of obesity among 1430 primary school children aged 9-12 years-old (mean age = 10.3 ± 0.8 years) in Selangor and Kuala Lumpur (Klang Valley). Body mass index (BMI) was used as a measure of obesity. Subjects were invited to complete a self-administered questionnaire, including Child Feeding Questionnaire (CFQ) and Determinants of Adolescent Social Well-being and Health (DASH). Besides, body mass index (BMI) was used as a measure of obesity. The respondents comprised of 41.5% of males and 58.4% female children encompassed 56.3% Malay, 25.6% Chinese, 16.6% Indian and 1.4% Others. A total of 17.9% (293) were overweight while 16.0% (263) were obese. More females (10%) than males (7.9%) were found to be overweight. However more males (9.0%) than females (7.0%) were obese.

Familial factors were measured and most parents perceived their weight (53.1%) and their child's weight (57.1%) to be balanced. Parents were also responsible for feeding their child (10.1 ± 2.1), concern of child's weight status (7.5 ± 2.6), highly restrict child's eating (11.4 ± 2.3), moderately pressure child to eat (6.4 ± 1.8), highly encourage healthy eating and physical activity (9.2 ± 1.1), and moderately makes sugar dense foods and vegetables available at home (15.9 ± 2.8 ; 9.2 ± 1.5). Parent's and children dietary intake was found to be similar respectively: fruits and vegetables (19.5 ± 3.1 ; 18.2 ± 3.6), meat (8.6 ± 1.4 ; 8.5 ± 1.6), fast food (5.8 ± 0.9 ; 5.5 ± 1.0), snack (8.3 ± 1.7 ; 7.7 ± 1.8) and sweet drinks (5.7 ± 1.2 ; 5.6 ± 1.2) consumption. Children's physical activity (16.5 ± 3.7) was reported to be higher than parent's physical activity involvement (13.0 ± 3). Socio-environment factors were also measured where parent's moderately perceived their neighbourhood to be safe (14.8 ± 3.1) and most neighbourhood were reported to only have fields as recreational facilities (1.6 ± 1.0).

A significant association between child's weight status and parents weight status was found ($\chi^2 = 204$, $p = 0.015$). The relationship was positive between children's BMI and parent's BMI ($r = 0.129$, $p \leq 0.01$). Other familial factor positively correlated with children's BMI were concern about child's weight ($r = 0.125$, $p \leq 0.01$) and restriction ($r = 0.057$, $p \leq 0.05$). However, pressure to eat ($r = -0.135$, $p \leq 0.01$) on children was negatively associated with children's BMI. Socio-environmental factors were measured to look at the relationship with children's BMI. Neighbourhood safety perception ($r = -0.053$, $p \leq 0.05$) was negatively correlated with children's BMI.

Logistic regression reported the risk of overweight and obese in children was found among female children (OR=0.538; 95% CI = 0.421, 0.687), parents of increasing BMI (OR=1.055; 95%=1.028, 1.082), parent's of increasing concern about child's weight (OR=1.082; 95%= 1.030; 1.127), increasing practice of restriction (OR=1.059; 95%= 0.999; 1.123), increasing pressure to eat (OR=0.857; 95% = 0.801-0.916) and decreasing neighbourhood safety perception of parents (OR=0.951; 95% =0.913; 0.990). Information from this study recommends that parents should be informed of the importance of familial and socio-environmental influence on child's weight status and intervention programs should mainly focus on educating parents on these areas of influence on the child.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai
memenuhi keperluan untuk ijazah
Master Sains

**PENGARUH KELUARGA DAN PERSEKITARAN SOSIAL
TERHADAP OBESITI DI KALANGAN KANAK-KANAK SEKOLAH
DI DAERAH SELANGOR DAN KUALA LUMPUR**

Oleh

SERENE TUNG EN HUI
October 2010

Pengerusi: Shamarina Shohaimi, PhD

Fakulti: Faculti Sains

Satu kajian keratan-rentas telah dijalankan untuk menentukan pengaruh keluarga dan persekitaran sosial terhadap obesiti di kalangan 1430 kanak-kanak sekolah rendah berumur 9-12 tahun (min tahun 10.3 ± 0.8) di Selangor dan Kuala Lumpur (Klang Valley). Indeks Jisim Tubuh (IJT) telah digunakan untuk menilai obesiti. Subjek dijemput untuk mengisikan boring soal selidik yang mengandungi *Child Feeding Questionnaire (CFQ)* dan *Determinants of Adolescent Social Well-being and Health (DASH) questionnaire*. Responden yang terlibat terdiri daripada 41.5% lelaki dan 58.4% perempuan, merangkumi 56.3% Melayu, 25.6% Cina, 16.6% India dan 1.4% lain-lain. Sebanyak 17.9% kanak-kanak adalah berlebihan berat badan dan 16.0% kanak-kanak adalah obes. Reponden perempuan didapati lebih ramai berlebihan berat badan (10%) berbanding dengan responden lelaki (7.9%). Namun demikian, lebih ramai responden lelaki didapati lebih obes (9.0%) berbanding dengan responden perempuan (7.0%).

Pengaruh keluarga dinilai dan kebanyakan ibu-bapa menganggap bahawa berat badan sendiri (53.1%) dan berat badan anaknya (57.1%) adalah seimbang. Ibu-bapa turut menganggap bertanggungjawab terhadap pemakanan anak (10.1 ± 2.1), prihatin terhadap berat badan anaknya (7.5 ± 2.6), menghadkan pemakanan anak (11.4 ± 2.3), mendesak anak makan (6.4 ± 1.8), menggalakkan pemakanan dan aktiviti fizikal yang sihat (9.2 ± 1.1), sedia adakan makanan bergula, buah-buahan dan sayur-sayuran di rumah (15.9 ± 2.8 ; 9.2 ± 1.5). Pemakanan ibu-bapa dan kanak-kanak didapati serupa: pemakanan buah-buahan dan sayur-sayuran (19.5 ± 3.1 ; 18.2 ± 3.6), daging (8.6 ± 1.4 ; 8.5 ± 1.6), makanan segera (5.8 ± 0.9 ; 5.5 ± 1.0), snek (8.3 ± 1.7 ; 7.7 ± 1.8) and minuman bergula (5.7 ± 1.2 ; 5.6 ± 1.2). Penglibatan kanak-kanak dalam aktiviti fizikal (16.5 ± 3.7) didapati lebih tinggi berbanding dengan penglibatan ibu-bapa (13.0 ± 3). Faktor-faktor sosial turut dinilai dan didapati ibu-bapa kurang menganggap persekitaran rumah mereka selamat (14.8 ± 3.1) dan padang-padang rekreasi turut kurang sedia ada (1.6 ± 1.0).

Interaksi yang signifikan bagi berat kanak-kanak dan berat ibu-bapa ($\chi^2 = 204$, $p = 0.015$) ditemui. Perkaitan positif didapati juga bagi IJT kanak-kanak dan ibu-bapa ($\chi^2 = 204$, $p = 0.015$). Pengaruh keluarga yang juga didapati berkaitan positif terhadap IJT kanak-kanak termasuk kebimbangan terhadap berat badan anak ($r = 0.125$, $p \leq 0.01$) dan penyekatan ($r = 0.057$, $p \leq 0.05$). Namun demikian, tekanan untuk makan ($r = -0.135$, $p \leq 0.01$) didapati berkaitan negatif dengan IJT kanak-kanak. Pengaruh persekitaran sosial turut dinilai untuk melihat perkaitannya dengan IJT kanak-kanak. Persepsi terhadap

keselamatan tempat tinggal ($r = -0.053$, $p \leq 0.05$) didapati berkaitan negatif dengan IJT kanak-kanak.

Analisis regresi logistik melaporkan risiko kanak-kanak kelebihan berat badan dan obes di kalangan kanak-kanak dan didapati kanak-kanak perempuan ($OR=0.538$; 95% CI = 0.421, 0.687), IJT ibu-bapa yang tinggi ($OR=1.055$; 95%=1.028, 1.082), prihatin terhadap berat badan anak ($OR=1.082$; 95%= 1.030; 1.127), menghadkan pemakanan anak ($OR=1.059$; 95%= 0.999; 1.123), mendesak anak makan ($OR=0.857$; 95% = 0.801-0.916) dan persepsi persekitaran rumah selamat ($OR=0.951$; 95% =0.913; 0.990). Informasi daripada kajian ini mencadangkan bahawa ibu-bapa seharusnya dididik tentang kepentingan pengaruh keluarga dan persekitaran sosial terhadap berat status kanak-kanak dan program-program pencegahan seharusnya memfokus dalam mendidik pengaruh-pengaruh berkenaan terhadap kanak-kanak.

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I certify that an Examination Committee has met on Conduct the final examination of Serene Tung En Hui on her degree thesis entitled “Familial and Socio-environmental predictors of obesity among school children in Selangor and Kuala Lumpur (Klang Valley)” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the student be awarded Masters of Science Degree.

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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.

SERENE TUNG EN HUI

Date: 5 October 2010

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