

Documents

Sari, D.K.^a, Ichwan, M.^b, Masyithah, D.^c, Dharmajaya, R.^d, Khatib, A.^e

The incidence of adult obesity is associated with parental and adolescent histories of obesity in North Sumatra, Indonesia: A cross-sectional study

(2021) *Journal of Multidisciplinary Healthcare*, 14, pp. 2437-2444.

DOI: 10.2147/JMDH.S324774

^a Department of Nutrition, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

^b Department of Pharmacology, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

^c Department of Parasitology, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

^d Department of Neurosurgery, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

^e Kulliyah of Pharmacy, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Abstract

Purpose: Obesity that occurs in adulthood is influenced by various factors, not only energy balance, especially concerning the amount of energy consumed, but also heredity. The hereditary factors of obese parents on childhood obesity have been studied, but what about adulthood? This study examines the relationship between a history of obesity in adolescence, and maternal and paternal incidences of adult obesity. Patients and Methods: This study was a cross-sectional study that included adult men and women aged 20–60 years old. The subjects had no chronic or metabolic disease. This research was conducted from April to November, 2020, in North Sumatra Province, Indonesia. The parameters studied were demographics, daily food intake, anthropometry and a history of obesity in adolescence, and for the participants' fathers and mothers. The statistical test used was the chi-squared test/Fisher test. Results: This study included 136 research subjects, 60 male and 76 female; based on the results of the study, 47.8% were found to be obese, but food intake showed a low intake (96.2%). There was a significant relationship between a history of obesity in adolescence and incidences of obesity (≥ 30 kg/m²) in the mother and father, with significance values of $p=0.01$, $p=0.004$, and $p=0.001$, respectively. Conclusion: This study found that there was a significant relationship between a history of obesity in adolescence and incidences of adult obesity (≥ 30 kg/m²) in parents, but not with the level of food intake per day. The risk of obesity will increase further with a history of obesity in parents and obesity in adolescence, and this can be used to understand and prevent obesity. © 2021 Sari et al.

Author Keywords

Adolescent; Anthropometry; Energy; Food; Heredity

Index Keywords

adolescence, adult, adulthood, Article, cross-sectional study, father, female, food intake, heredity, human, incidence, Indonesia, major clinical study, male, medical history, mother, obesity, parent, risk factor

References

- (2021) *Obesity*, WHO. Accessed June 2, 2021
- Meyer, JF, Larsen, SB, Blond, K
Associations between body mass index and height during childhood and adolescence and the risk of coronary heart disease in adulthood: a systematic review and meta-analysis
Obes Rev, 2021, p. e13276.
- Raghuv eer, G.
Lifetime cardiovascular risk of childhood obesity
(2010) *Am J Clin Nutr*, 91 (5), pp. 1514S-1519S.

- Nguyen, V, Enette Larson, D, Rachel, K
Fat intake and adiposity in children of lean and obese parents
(1995) *Am J Clin Nutr*, 63, pp. 507-513.
- Bouchard, C.
Childhood obesity: are genetic differences involved?
(2009) *Am J Clin Nutr*, 89 (5), pp. 1494S-1501S.
- Yayun, L, Yang, H, Zhiyue, X
Association Between Different Obesity Patterns and the Risk of Developing Type 2 Diabetes Mellitus Among Adults in Eastern China: a Cross-Sectional Study
(2021) *Diabetes Metab Syndrome Obesity*, 14, pp. 2631-2639.
- Ziser, K, Decker, S, Stuber, F
Barriers to Behavior Change in Parents With Overweight or Obese Children: a Qualitative Interview Study
(2021) *Front Psychol*, 12, p. 631678.
- Shen, C, Zhou, Z, Lai, S
Urban-rural-specific trend in prevalence of general and central obesity, and association with hypertension in Chinese adults, aged 18–65 years
(2019) *BMC Public Health*, 19, p. 661.
- Hou, X, Liu, Y, Huijuan, L
Ten-year changes in the prevalence of overweight, obesity and central obesity among the Chinese adults in urban Shanghai, 1998–2007 — comparison of two cross-sectional surveys
(2013) *BMC Public Health*, 13, pp. 1064-1072.
- (2000) *The Asia-Pacific perspective: redefining obesity and its intervention*, WHO. Health Communications Australia Pte Limited. Australia; Accessed June 2, 2021
- RI, K.
(2019) *RISKESDAS 2018: Laporan Provinsi Sumatera Utara*, Medan, North Sumatra: Lembaga Penerbit Balitbangkes
- Niu, J, Seo, DC.
Central obesity and hypertension in Chinese adults: a 12-year longitudinal examination
(2014) *Prev Med*, 62, pp. 113-118.
- Du, T, Sun, X, Yin, P
Increasing trends in central obesity among Chinese adults with normal body mass index, 1993–2009
(2013) *Pediatr Diabetes*, 13, pp. 327-335.
- Arsenault, LN, Xu, K, Taveras, EM
Parents' obesity-related behavior and confidence to support behavioral change in their obese child: data from the STAR study
(2014) *Acad Pediatr*, 14 (5), pp. 456-462.
- Rodriguez-Moran, M, Guerrero-Romero, F, Aradillas-Garcia, C
Obesity and family history of diabetes as risk factors of impaired fasting glucose: implications for the early detection of prediabetes
(2010) *Pediatr Diabetes*, 11, pp. 331-336.

- Romero-Ibarguengoitia, ME, Vadillo-Ortega, F, Caballero, AE
Family history and obesity in youth, their effect on acylcarnitine/ aminoacids metabolomics and non-alcoholic fatty liver disease (NAFLD). Structural equation modeling approach
(2018) *PLoS One*, 13, p. e0193138.
- Lee, JH, Reed, DR, Price, RA.
Familial risk ratios for extreme obesity: implications for mapping human obesity genes
(1997) *Int J Obes Relat Metab Disord*, 21 (10), pp. 935-940.
- Gunnell, DJ, Frankel, SJ, Nanchahal, K
Childhood obesity and adult cardiovascular mortality: a 57-y follow-up study based on the Boyd Orr cohort
(1998) *Am J Clin Nutr*, 67 (6), pp. 1111-1118.
- Corica, D, Aversa, T, Valenzise, M
Does Family History of Obesity, Cardiovascular, and Metabolic Diseases Influence Onset and Severity of Childhood Obesity?
(2018) *Front Endocrinol (Lausanne)*, 9, p. 187.
- Sull, JW, Kim, S, Jee, SH.
Effects of Obesity and Family History of Diabetes on the Association of CETP rs6499861 with HDL-C Level in Korean Populations
(2019) *J Lipid Atheroscler*, 8, pp. 252-257.
- Chung, CJ, Huang, YG.
Predictive factors for accuracy of perception of parents regarding their overweight or obese children in Taiwan
(2016) *Asia Pac J Clin Nutr*, 25, pp. 571-577.
- Davidson, K, Vidgen, H.
Why do parents enrol in a childhood obesity management program?: a qualitative study with parents of overweight and obese children
(2017) *BMC Public Health*, 17 (1), p. 159.
- (2019) *Angka Kecukupan Gizi bagi Bangsa Indonesia*, p. 33.
RI PMK. Indonesia KKR, editor. Jakarta: Kementerian Kesehatan RI
- Erhardt, DJ.
(2010) *Nutrition Surveys and Calculation*,
Gross, Dr. Rainer
- Cederberg, H, Stancakova, A, Kuusisto, J
Family history of type 2 diabetes increases the risk of both obesity and its complications: is type 2 diabetes a disease of inappropriate lipid storage?
(2015) *J Intern Med*, 277 (5), pp. 540-551.
- Reuter, CP, Burgos, MS, Bernhard, JC
Association between overweight and obesity in schoolchildren with rs9939609 polymorph-ism (FTO) and family history for obesity
(2016) *J Pediatr (Rio J)*, 92 (5), pp. 493-498.

- Manios, Y, Moschonis, G, Karatzi, K
Large proportions of overweight and obese children, as well as their parents, underestimate children's weight status across Europe. The ENERGY (European Energy balance Research to prevent excessive weight Gain among Youth) project
(2015) *Public Health Nutr*, 18 (12), pp. 2183-2190.
- Baker, JL, Olsen, LW, Sorensen, TI.
Childhood body-mass index and the risk of coronary heart disease in adulthood
(2007) *N Engl J Med*, 357, pp. 2329-2337.
- Must, A, Jacques, PF, Dallal, GE
Long-term morbidity and mortality of overweight adolescents. A follow-up of the Harvard Growth Study of 1922 to 1935
(1992) *N Engl J Med*, 327 (19), pp. 1350-1355.
- Saunders, TJ, Tremblay, MS, Mathieu, ME
Associations of sedentary behavior, sedentary bouts and breaks in sedentary time with cardiometabolic risk in children with a family history of obesity
(2013) *PLoS One*, 8, p. e79143.
- Bibbins-Domingo, K, Coxson, P, Pletcher, MJ
Adolescent overweight and future adult coronary heart disease
(2007) *N Engl J Med*, 357 (23), pp. 2371-2379.

Correspondence Address

Sari D.K.; Department of Nutrition, Jl. Dr. Mansyur No. 5, Padang Bulan, Kec. Medan Baru, Kota Medan, Sumatera Utara, Indonesia; email: dina@usu.ac.id

Publisher: Dove Medical Press Ltd

ISSN: 11782390

Language of Original Document: English

Abbreviated Source Title: J. Multidiscip.Healthc.
2-s2.0-85114884555

Document Type: Article

Publication Stage: Final

Source: Scopus

ELSEVIER

Copyright © 2021 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.