

A Child's Health Behaviours and Body Mass Index (BMI) are influenced by the Parent's BMI

Aseer Khan*

EMGO Institute, Department of Obesity, VU University Medical Center, Amsterdam, Netherlands

Abstract

Parents and child's body mass index (BMI) are strongly associated, but their relationship varies by child's sex and age. Parental BMI reflects, among other factors, parents' behaviors and home environment, which influence their child's behaviors and weight. This study examined the indirect effect of parent's BMI on child's BMI via child health behaviors, conditional on child's sex and age. Parental BMI was related to %BMIp95 across all age groups, and was strongest in 11-12 yr. children. Parental BMI was positively associated with boys' fruit and vegetable (FV) intake and girls' sugar-sweetened beverage (SSB) intake. Compared to 2-4 yr., older children had less FVs and physical activity, more screen time and SSB, and higher %BMIp95. Mediation effects were not significant. Parental BMI was associated with child's %BMIp95 and some child behaviors, and this association was stronger in older children; older children also exhibited less healthy behaviors. Age- and sex-specific interventions that focus on age-related decreases in healthy behaviors and parental strategies for promoting healthy behaviors among at-risk children are needed to address this epidemic of childhood obesity. Prevention of childhood obesity is a public health priority, because obesity in childhood increases risk of obesity in adulthood and is associated with long-term adverse health consequences.

Keywords: Body mass index; Physical activity; Child's health behaviors

Introduction

Numerous research have suggested a sturdy affiliation between parent's and child's physique mass index (BMI), and teenagers whose dad and mom had a healthful BMI exhibited more healthy behaviors such as normal bodily exercise (PA) and accelerated dietary patterns, in contrast with teenagers whose dad and mom had greater BMI. Higher maternal BMI is associated to greater child's BMI and sedentary behavior, much less fruit consumption, and greater TV viewing. These effects are constant with the thought that parental BMI displays parents' fitness behaviors that impact their child's fitness behaviors and finally weight status. Thus, the improvement of weight problems in childhood and persistence into maturity is now not totally defined by means of inheritable factors, however additionally through the fitness and parenting behaviors of parents/caregivers.

Although the sharing of genetic and behavioral elements between mother, father and teens consequences in a comparable propensity for weight problems status, the affiliation of dad or mum and infant BMI has been proven to fluctuate by means of child's intercourse and age[1-5]. Both son's and daughter's BMI has been stated to be extensively associated to father's BMI, whilst daughter's BMI was once appreciably associated to mother's BMI only[5-10]. Two separate researches validated that children's PA was once affected through shared environmental elements for dad and mom and younger children, however no longer for mother and father and adolescents. This can be defined through a reducing effect of dad and mom on children's behaviors as teenagers mature and grow to be greater impartial from their dad and mom. Moreover, older children's behaviors and weight problems repute may additionally be affected through faculty application peer behaviors. Given the influences of faculties and friends on children's fitness behaviors and for this reason their BMI, we anticipate that the affiliation of parental BMI on their child's behaviors and BMI would be predicted to fluctuate as a feature of child's age. Thus, baby age may additionally average the affiliation between parental BMI and child's fitness behaviors and BMI.

This learn about investigated 1) the extent to which parental BMI

was once related with the child's fitness behaviors and BMI, 2) the position of child's fitness behaviors as mediators between parental BMI and child's BMI, and 3) whether or not these relationships are conditional on child's intercourse and age. We hypothesized: 1) healthful parental BMI would be related with more healthy baby behaviors and BMI, 2) wholesome infant behaviors would be associated to a more healthy toddler BMI, 3) the relation between parental BMI and toddler BMI would be partly mediated by way of the child's fitness behaviors, and 4) these associations would fluctuate by way of child's intercourse and age.

This study about used to be a secondary evaluation of baseline facts accrued on the Childhood Obesity Research Demonstration undertaking (CORD). CORD carried out built-in essential care and public fitness interventions throughout eight communities in three states in the U.S. to enhance baby and household fitness behaviors and to forestall and minimize childhood weight problems amongst households eligible for advantages underneath Titles XIX (Medicaid) and XXI (Children's Health Insurance Plan (CHIP)) of the Social Security Act, which are applications supposed to serve households with low family income.

Anthropometric Measures

Anthropometric measures have been accumulated the use of the strategies described in the National Health and Nutrition Examination Survey Anthropometry Procedures Manual. Parent and child's top and weight have been recorded in centimetres (cm) to the nearest 0.1 cm and kilogram (kg) to the nearest 0.1 kg, respectively. Parental BMI used

***Corresponding author:** Aseer Khan, EMGO Institute, Department of Obesity, VU University Medical Center, Amsterdam, Netherlands. E-mail: aseer.k@gmail.com

Received: 26-Jul-22, Manuscript No. jomb-22-70696; **Editor assigned:** 28-Jul-22, PreQC No. jomb-22-70696 (PQ); **Reviewed:** 11-Aug-22, QC No. jomb-22-70696; **Revised:** 16-Aug-22, Manuscript No. jomb-22-70696(R); **Published:** 23-Aug-22, DOI: 10.4172/jomb.1000125

Citation: Khan A (2022) A Child's Health Behaviours and Body Mass Index (BMI) are influenced by the Parent's BMI. J Obes Metab 5: 125.

Copyright: © 2022 Khan A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

to be calculated the use of the Quetelet index equation (kg/m^2). Each child's relative BMI, computed as the share of the respective age and intercourse particular BMI ninety fifth percentile price %BMI_{p95}), was once used as the infant BMI variable, calculated the usage of the CDC reference records and software program algorithm. This measure has been proven to be greater excellent for the heaviest teenagers (i.e., these >97th percentile), an attribute of this pattern given the inclusion standards in one web page (TX) and the demographics of the different two web sites (i.e., rural, racially/ethnically diverse, low-income). In addition, it has higher statistical homes for comparisons than different BMI-derived measures for children.

Child Health Behavior Variables

Child health behaviors had been measured by means of surveying mother and father the usage of a preferred set of objects chosen from formerly validated instruments[10-15]. Child's instances per day consuming fruits and greens (FVs) (sum of 2 items) and sugar-sweetened liquids (SSBs) (sum of 2 items) had been assessed the usage of objects from the School Physical Activity and Nutrition assignment survey and the Child and Adolescent Trial for Cardiovascular Health (CATCH) Kids Club After-school questionnaire. Number of days per week engaged in 60 min or greater of PA was once assessed the use of one object from the Youth Risk Behavior Survey. The dad or mum chosen 0 to 7 days for their child, which resulted in a particularly negatively skewed distribution, so the observed responses have been dichotomized into 7 days/week (every day) versus much less than 7 days/week (not each day) for analyses. Total hours and minutes per week of display screen time (TV/DVD, computer/video game, etc.) had been computed from hours and minutes per weekday and weekend day for screen time accumulated the use of 4 gadgets from the CATCH Kids Club After-school questionnaire.

Analyses

Separate analyses have been performed for boys and girls. Descriptive statistics were reported as means and standard deviations (mean \pm SD) or percentages (%). A generalized structural equation modeling strategy to route evaluation was once used to estimate and take a look at concurrently the associations between parental BMI and child's BMI, parental BMI and child's fitness behaviors, and child's fitness behaviors and BMI amongst the three toddler age groups. Associations had been modeled the use of linear hyperlinks and everyday distributions, barring for children's PA, which used to be a dichotomous variable and was once modeled the usage of a log link and binomial distribution. Parental BMI was once mean-centered so that interplay outcomes ought to be interpreted at the common BMI of the parents.

In this study, parental BMI used to be positively associated to child's %BMI_{p95} in both boys and girls, as preceding research have r. The 90% of enrolled adults being moms can also have resulted in the more suitable determined affiliation of mothers' BMI on %BMI_{p95} in daughters due to the fact that the affiliation of BMI in mother-daughter dyads is greater than in mother-son, father-daughter, or father-son dyads. In our data, older boys (elementary) and female (elementary and center school) confirmed a better superb affiliation between %BMI_{p95} and parental BMI, in contrast to the preschool-aged children. Previous research located that weight problems fame in older youth used to be affected with the aid of each inheritable characteristics from dad and mom and shared surroundings over time and emphasised that environmental results had been vital determinants to improve conduct patterns and weight problems amongst adolescents. One achievable

rationalization for our consequences is that elements frequent to each dad and mom and children, who stay in the identical household, consisting of genetic, environmental, and sociocultural influences, may also end result in greater %BMI_{p95} in older youngsters and expand the affiliation with parental BMI.

Discussion

An assumption in decoding our effects is that parental BMI is an indicator of genetic, environmental and sociocultural elements frequent to dad and mom and children, and probably long-term parental dietary, PA, and sedentary behaviors, and that these fitness behaviors would have an effect on their child's fitness behaviors and BMI. Thus, we predicted that unhealthy parental BMI would be related with child's unhealthy behaviors such as much less FV and greater SSB intake[15-20]. Consistent with electricity stability theory, we hypothesized that unhealthy infant behaviors associated to power consumption (FV and SSB intake) and to strength expenditure (PA and display time) would be associated to their %BMI. In the current study, a massive distinction in parental BMI was once positively related with FV consumption in boys and SSB consumption in women (although the impact dimension is very small, it was once statistically considerable due to the giant pattern size), however no longer with child's display time and PA. Previous research discovered an affiliation of greater parental BMI with their youngsters viewing more TV and attractive in much less PA. Additionally, solely children's PA used to be related with their %BMI_{p95} in this study, whereas different research determined relationships between children's BMI and their dietary and sedentary behaviors.

One explanation for inconsistencies between our outcomes and preceding research may additionally be due to specific measures of child's fitness behaviors. In our study, children's FV and SSB consumption had been measured as times/day of the prior day, which do now not supply a whole quantification of a child's dietary intake, whereas preceding research measured each frequency and component sizes. Nevertheless, our facts point out that parental BMI is a correlate of some child's fitness behaviors and %BMI_{p95}, and the survey questions that we used in this find out about have been validated and used in preceding studies.

This study has a number of limitations. First, the pattern used to be specifically Hispanic households who had been eligible for Medicaid and CHIP benefits, so the outcomes might also no longer generalize to populations with a exceptional ethnicity or greater family income. Second, the cross-sectional facts approves for solely evaluating associations amongst parental BMI and child's fitness behaviors and %BMI_{p95}; there may additionally be unmeasured causal variables and paths that had been no longer blanketed in the analyses. Third, the survey gadgets did no longer mirror long-term toddler fitness behaviors, asking solely about behaviors on a single day or week, and self-reported behaviors can also now not be as correct as extra goal measures. Fourth, parental conduct statistics have been now not constantly accrued throughout the web sites and have been consequently now not accessible for our analyses; guardian behaviors may also be greater at once and strongly associated to baby fitness behaviors than is father or mother BMI. Fifth, the oldest age team sample sizes have been smaller than the different age groups, for that reason limiting the precision of the estimates for that group.

Despite these limitations, this study covered low-income households from specific states and cities throughout the USA, which permits broader generalization of the consequences in contrast to

single-site studies. Investigation of age variations of the relationships amongst parental BMI, child's fitness behaviors, and child's BMI is a novel aspect. Age-specific associations may also be informative for thinking about specific intervention strategies, such as presenting interventions for the household and domestic surroundings for preschool children, however consisting of extra interventions for older children, in view that older teens spend tons time at faculty as properly as home, make choices extra independently, and are influenced by using peer companies in addition to parents.

Conclusion

This find out about established a giant affiliation between father or mother BMI and child's %BMIP95 however failed to discover any mediation via baby fitness behaviors. The affiliation between parental BMI and older children's %BMIP95 used to be superior in contrast to youthful children. Older teenagers additionally had unhealthier behaviors such as much less day by day FV consumption and PA engagement and extra weekly display screen time and SSB intake; these unhealthy behaviors have been related with their greater %BMIP95. Parental BMI would influence unhealthy behaviors and weight problems in their children, however our consequences are constant with the thinking that childhood weight problems might also be affected by way of multi-factors such as environmental factors, inheritable factors, parental behaviors, and a child's very own unhealthy behaviors. Thus, interventions for the prevention and manipulate of childhood weight problems may also reflect on consideration on focusing on concurrently altering the fitness behaviors of each dad and mom and children. Our findings are additionally constant with the thinking that early existence (before age 5) can also be the quality chance for interventions to forestall childhood obesity, earlier than adolescents enhance their personal unhealthy behaviors and weight status.

Acknowledgement

I would like to acknowledge EMGO Institute, Department of Obesity, VU University Medical Center, Amsterdam, Netherlands for providing an opportunity to do research.

Conflict of Interest

No potential conflicts of interest relevant to this article were reported.

References

- Ogden CL, Carroll MD, Kit BK, Flegal KM (2014) Prevalence of childhood and adult obesity in the United States, 2011-2012. *Jama* 311: 806-814.
- Singh AS, Mulder C, Twisk JW, Van Mechelen W, Chinapaw MJ (2008) Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obes Rev* 9: 474-488.
- Biro FM, Wien M (2010) Childhood obesity and adult morbidities. *Am J Clin Nutr* 91: 1499s-1505s.
- Liu Y, Chen HJ, Liang L, Wang Y (2013) Parent-child resemblance in weight status and its correlates in the United States. *PLoS One* 8: e65361.
- Morello MI, Madanat H, Crespo NC, Lemus H, Elder J (2012) Associations among parent acculturation, child BMI, and child fruit and vegetable consumption in a Hispanic sample. *J Immigr Minor Health* 14: 1023-1029.
- Maffei C, Talamini G, Tato L (1998) Influence of diet, physical activity and parents' obesity on children's adiposity: a four-year longitudinal study. *Int J Obes Relat Metab Disord* 22: 758-764.
- Steffen LM, Dai S, Fulton JE, Labarthe DR (2009) Overweight in children and adolescents associated with TV viewing and parental weight: project HeartBeat. *Am J Prev Med* 37: S50-S55.
- Ventura AK, Birch LL (2008) Does parenting affect children's eating and weight status? *Int J Behav Nutr Phys Act* 5: 15.
- Carriere G (2003) Parent and child factors associated with youth obesity. *Health Rep* 14: 29-39.
- Franks PW, Ravussin E, Hanson RL, Harper IT, Allison DB, et al. (2005) Habitual physical activity in children: the role of genes and the environment. *Am J Clin Nutr* 82: 901-908.
- Fernandes MM, Sturm R (2011) The role of school physical activity programs in child body mass trajectory. *J Phys Act Health* 8: 174-181.
- Halliday TJ, Kwak S (2009) Weight gain in adolescents and their peers. *Econ Hum Biol* 7: 181-190.
- Foltz JL, Belay B, Dooyema CA, Williams N, Blanck HM (2015) Childhood obesity research demonstration (CORD): the cross-site overview and opportunities for interventions addressing obesity community-wide. *Child Obes* 11: 4-10.
- Tripicchio G, Keller KL, Johnson C, Pietrobelli A, Heo M, et al. (2014) Differential maternal feeding practices, eating self-regulation, and adiposity in young twins. *Pediatr* 134: e1399-1404.
- Fogelholm M, Nuutinen O, Pasanen M, Myohanen E, Saatela T (1999) Parent-child relationship of physical activity patterns and obesity. *Int J Obes Relat Metab Disord* 23: 1262-1268.
- Williams SL, Mummery WK (2011) Links between adolescent physical activity, body mass index, and adolescent and parent characteristics. *Health Educ Behav* 38: 510-520.
- Dumith SC, Gigante DP, Domingues MR, Kohl HW (2011) Physical activity change during adolescence: a systematic review and a pooled analysis. *Int J Epidemiol* 40: 685-698.
- Drenowatz C, Erkelenz N, Wartha O, Brandstetter S, Steinacker JM (2014) Parental characteristics have a larger effect on children's health behaviour than their body weight. *Obes Facts* 7: 388-398.
- Johansson E, Mei H, Xiu L, Svensson V, Xiong Y, et al. (2016) Physical activity in young children and their parents-an early STOPP Sweden-China comparison study. *Sci Rep*. 6: 29595.
- Trost SG, Pate RR, Sallis JF, Freedson PS, Taylor WC, et al. (2002) Age and gender differences in objectively measured physical activity in youth. *Med Sci Sports Exerc* 34: 350-355.