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Parenthood linked to new onset overweight or obesity among Chilean adolescents

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Abstract

Objective—To determine whether early parenthood is associated with the onset of overweight/obesity during adolescence.

Methods—Weight status changes between ages 16 and 21 years were measured in 270 Chilean youths. Parenthood by age 21 was assessed by interview.

Results—Sixty-three youths became overweight/obese between ages 16 and 21 years (23%), and 24% (n = 65) of the total sample were parents by age 21. Bearing a child by age 21 was associated with a two-fold risk of becoming newly overweight or obese (OR = 2.6, CI: 1.1, 5.9, p < 0.05). Earlier internalizing problems were also associated with the development of overweight/obesity in young mothers.

Conclusion—Weight status changes from normal to overweight or obese were more likely to occur among young parents than non-parents. This has implications for adolescents' future health

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given their likelihood of having subsequent pregnancies and the known risks of increased weight at each pregnancy.

Keywords

adolescent childbearing; early parenthood; obesity; pregnancy

Introduction

Obesity is a leading risk factor for cardiovascular disease. Identifying the risks for early onset obesity, therefore, is crucial for prevention. One risk factor for weight gain among women is childbearing (1). Pregnancy during adolescence has been associated with being overweight or obese in adulthood (2), but it is not currently known whether early childbearing is associated with the onset of overweight/obesity during adolescence. This study examined whether early parenthood was associated with the onset of overweight/obesity between ages 16 and 21 years. We also examined the role of adolescent internalizing and externalizing problems in this association.

Methods

Sample

The sample involved 270 young adults (M age = 20.1 years; 58% females) who have been followed since infancy as part of a large iron deficiency preventive trial in Santiago, Chile (3). All participants were enrolled as healthy, full-term infants weighing 3 kg or more at birth and were from low- to mid-income families. The sample used for this analysis represents those studied during the first 2 years of recruitment for the study's 21-year follow-up.

Measures

Participant height (cm) and weight (kg) were measured at the 16- and 21-year follow-ups by trained staff at the Institute for Nutrition and Food Technology (INTA), University of Chile. Weight was measured to the closest 0.1 kg using a SECA scale (SECA GmbH & Co. K.G., Hanover, MD, USA), and height was measured to the closest 0.1 cm using a Holtain stadiometer (Holtain LTD, Crosswell, Pembrokeshire, UK). Measurements were performed twice, with a third measurement if the first two measurements differed by 0.3 kg for weight and/or 0.5 cm for height. BMI was calculated at the 16-year and 21-year waves based on weight [kg]/height [m²]. Overweight/obesity was defined according to CDC standards, BMI 85th percentile for those < 21 years and BMI ≥ 25 for those ≥ 21 years. We used a dichotomous variable for newly overweight/obese. When youth were between ages 14 and 16 years, their parents completed the Child Behavioral Checklist (CBCL), which yielded scores for social withdrawal, somatic complaints, anxiety/depression, thought problems, attention problems, aggression and delinquency. At the 21-year wave, having a biological child was assessed by interview and coded dichotomously (0 = no, 1 = yes). Participants' mothers' education (proxy for socioeconomic status) was also coded dichotomously as 0 = primary education only or 1 = secondary education or more.

Results

Of the 270 participants, 24% had a biological child by age 21 (Table 1). The prevalence of overweight/obesity was 29% at 16 years, increasing to 51% at 21 years, with 63 youth (23%) becoming overweight or obese between 16 and 21 years. Neither the prevalence of overweight/obesity at each time point nor the emergence of obesity from ages 16 to 21 differed significantly by gender.

Early parenthood was associated with the onset of overweight/obesity between 16 and 21 years of age ($\chi^2[1] = 6.95$; $p = 0.01$), with more emerging cases of overweight/obesity among parents (35%) than among non-parents (19.5%). Controlling for gender, participant mothers' educational level and ages 14–16 CBCL scores, those who became parents by age 21 years were more than twice as likely as those who did not become parents to be newly overweight or obese (OR: 2.3, CI: 1.2, 4.5, $p < 0.05$). In addition, the average BMI of parents was significantly higher than those of non-parents at age 21 (27.18 vs. 25.47, $t[269] = 2.31$, $p < 0.05$) but did not differ at age 16. In stratified logistic regression models that included background variables, early parenthood was a risk factor for emerging overweight/obesity for females (OR: 2.6, CI: 1.1, 5.9, $p < 0.05$), but not for males (OR: 1.7, CI: 0.5–5.6, $p = 0.42$). T-test results revealed that young mothers who became newly overweight/obese had higher scores for 14–16 year attention problems, thought problems, anxiety/depression and somatic complaints compared to young mothers who did not become newly overweight/obese (all $p < 0.05$).

Limitations

We did not have information on gestational weight gain, which would have revealed how much weight was gained specifically during pregnancy as opposed to prior to or after pregnancy. Moreover, because this is an ongoing longitudinal study, patterns and findings may change as additional participants are studied.

Conclusion

Childbearing by 21 years of age was linked with the onset of overweight/obesity during adolescence. In addition, among young mothers, psychological factors were important risks for the development of overweight/obesity. These findings have implications for adolescents' future health given the likelihood of subsequent pregnancies and the known risks of increased weight at each pregnancy (4). Our results are troubling as obesity status typically changes relatively little from adolescence to adulthood (5). Thus, early childbearers may struggle with obesity throughout their lifetime. These findings suggest the need for clinical interventions that support pregnant adolescents in achieving optimal pregnancy weight gain and returning to pre-pregnancy weight within the first year postpartum.

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Table 1

Summary characteristics of 270 cohort participants at ages 16 and 21 years.

Variable	Total (n = 270)	Parents (n = 65)	Not parents (n = 205)
% Parents by age 21 years	24.1	NA	NA
% New onset obesity ^c	23.3	35.4	19.5
Age: mean years (SD)	20.3 (0.5)	20.2 (0.5)	20.3 (0.5)
Gender (% female) ^c	58.1	73.8	53.2
Weight status at 16 years ^d			
% Normal	71.5	72.3	71.2
% Overweight	19.6	15.4	21.0
% Obese	8.9	12.3	7.8
BMI at 21 years ^b	25.9 (5.3)	27.2 (5.4)	25.5 (5.2)
Weight status at 21 years ^a			
% Normal	49.3	40.0	52.2
% Overweight	28.9	32.3	27.8
% Obese	21.9	27.7	20.0
Participants' mothers' education ^{b,e}			
% Primary education (1–8 years)	33.7	44.6	30.2
% Secondary education (≥ 9 years)	66.3	55.4	69.8

Mean scores (SD) and percentages are shown. Stratified frequency is based on valid percentage. Significance based on χ^2 -tests for categorical and t-tests for continuous variables.

^a $p < 0.10$. Marginal significance in unadjusted bivariate comparison based on normal compared to overweight/obese.

^b $p < 0.05$;

^c $p < 0.01$.

^d Overweight and obesity defined according to CDC standards. Overweight: BMI ≥ 85% for those < 21 years of age, and BMI ≥ 25 for those ≥ 21 years of age. Obese: BMI ≥ 95% for those < 21 years of age and BMI ≥ 30 for those ≥ 21 years.

^e Participants' mothers' education at the 16-year follow-up.