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Obesity and contraceptive use among women 20–44 years of age in the United States: results from the 2011–15 National Survey of Family Growth (NSFG)☆

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Abstract

Objective: Obesity has increased dramatically in the United States in recent decades. Our objective was to explore associations of contraceptive choices of US women, aged 20–44 years, with body mass index (BMI) and relevant covariates.

Study design: Data are based on interviews with a national sample of 11,300 women in the 2011–2015 National Survey of Family Growth. We analyzed women ages 20–44 at risk of unintended pregnancy. The primary dependent variable was BMI category. Covariates analyzed included age, parity, race/ethnicity, marital status, self-reported health and education. Data were analyzed via cross-tabulation and logistic regression. We determined unadjusted and adjusted odds ratios for three categories of contraceptive method: female sterilization, intrauterine device (IUD) and hormonal contraception.

Results: Obese women have higher odds of female sterilization (BMI 30.0–34.9 kg/m^2: adjusted odds ratio (aOR) = 1.96, 95% confidence interval (CI) 1.45–2.66; BMI 35.0 kg/m^2 and higher: aOR=1.56, 95% CI 1.13–2.14) compared to women with normal BMI. Odds of IUD use are significantly higher among women with BMI >35 kg/m^2 (aOR=1.64, 95% CI 1.20–2.25). Odds of hormonal contraceptive use are correspondingly reduced (aOR=0.78, 95% CI 0.62–0.98) for women in the highest BMI category.

Conclusions: Contraceptive use varies by BMI category even after adjusting for usual correlates of use. Differences in contraceptive use by BMI category have implications for contraceptive counseling and provision.

Implications: Findings that obese women are more likely to rely on female sterilization raise questions about how weight concerns and obesity affect contraceptive decision making. Future research could explore associations between obesity and contraceptive use in adolescent women.

Keywords: Contraception; Obesity; Female sterilization; IUD; National Survey of Family Growth

1. Introduction

Obesity and unintended pregnancy have been described as "overlapping epidemics" [1]. Just under half of reproductive-age women seeking contraception are overweight or obese [2,3], with higher obesity prevalence among black and Hispanic women [2,4]. Obese women [those with body mass index (BMI) 30 kg/m^2 or higher] may have higher odds of unintended pregnancy [5,6]. Concern about potential health effects or decreased efficacy may impact contraceptive choices for women who are overweight or obese [7,8].

Previous studies differ in their conclusions about associations between BMI and contraceptive use, with some finding no association and others reporting differences in use by BMI category, including more sterilization among obese women [1,9,10]. Use of long-acting reversible contraceptive (LARC) methods — which are safe and effective regardless of BMI — has steadily increased since

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2000 among all women [11–13]. One recent study of a privately insured, primarily white population found higher LARC use among overweight and obese women [14].

We used the National Survey of Family Growth (NSFG) to investigate whether patterns of contraceptive use among US women varied by BMI category. Although most previous studies excluded sterilized women [15], we included them because sterilization is commonly reported among black women, Hispanic women and women over age 30 [13,16].

2. Methods

2.1. Study design and sample

We conducted a descriptive, cross-sectional analysis of data from the 2011–2015 NSFG conducted by the Centers for Disease Control (CDC)'s National Center for Health Statistics (NCHS). It is the preeminent data source for national estimates of pregnancy rates and contraceptive use [16,17].

The NSFG is a multistage, stratified national probability sample of men and women aged 15–44 years in the household population of the United States. We used the female sample in this analysis, which had a response rate of 73%. This sample is based on in-person interviews with 11,300 women conducted by trained female interviewers. Interviews were voluntary, and written consent was obtained [17,18]. Sensitive questions (e.g., weight, sexual behavior) were collected using Audio Computer-Assisted Self-Interviewing (ACASI), in which the respondent enters answers into a computer after reading questions on the screen and hearing them through headphones. The NSFG data collection was originally approved by NCHS/CDC and University of Michigan Institutional Review Boards; because this is a secondary data analysis, no further ethical review was necessary.

Our primary objective was to explore whether contraceptive method use differs between obese and nonobese women. Secondary objectives were to explore these relationships controlling for selected covariates.

2.2. Measures and analytic procedures

Analysis for this study included cross-tabulations and multivariable logistic regression. Data were analyzed using Stata version 13.1 (College Station, TX, USA). Results were weighted to adjust for the complex NSFG design using the .svy commands.

Our principal predictor variable was BMI (kg/m^2), based on height and weight as reported in the self-administered ACASI portion of the NSFG. Of 11,300 cases, we excluded 2479 who were younger than 20 or currently pregnant, and 146 with missing BMI data, leaving 8675. Data were analyzed by BMI category: normal weight (BMI <25.0 kg/m^2), overweight (25.0–29.9 kg/m^2), and obese (≥30.0 kg/m^2). Where sample size permitted, we analyzed data by obesity class: class I (BMI 30.0–34.9 kg/m^2) was distinguished from classes II (35.0–39.9 kg/m^2) and III (40.0 kg/m^2 or greater). The NSFG does not calculate BMI for young women ages 15–19, explaining that growth curves for children published by CDC should be used instead. These measures are not provided in the NSFG public use file, causing us to exclude women under 20 years of age [19].

2.3. Measurement of contraceptive use

The principal dependent variable was current contraceptive use, measured by the CONSTAT1 recoded variable. This shows contraceptive use in the month of interview. When multiple methods are reported, CONSTAT1 codes the most effective method. Like all NSFG recodes, CONSTAT1 has been extensively edited. Of 11,300 cases, 112 (just under 1%) were imputed by the NSFG staff and contractor because of missing or inconsistent data [18,20]. We further limited our sample to women at risk for unintended pregnancy, therefore excluding women who reported that they were sterile for reasons other than tubal ligation, trying to get pregnant or completely abstinent for the last 3 months. This resulted in a sample of 6562 women (Table 1).

We categorized contraceptive use based on extensive preliminary analysis as female sterilization, male sterilization, hormonal contraception, intrauterine device (IUD), condom, other and none. Female sterilization has been one of the two most common methods in the United States since at least 1982 [13,16]. We grouped pill and other systemic hormonal methods together since the number of users of methods other than the pill is relatively small. Thus, systemic hormonal methods include combined (pill, patch and ring) and progestin-only (pill, injectable and implant) contraceptives. While the levonorgestrel IUD does rely on hormonal effect, we included it in the IUD group for this analysis. Reasons for use are often different from those of systemic hormonal methods, and the contraceptive effect is primarily local/intrauterine. Male condom is shown separately because it is the third most popular method; male sterilization is shown separately because it is male controlled, is very effective, and has a distinct user profile. All "other" methods include withdrawal, calendar rhythm, temperature rhythm, periodic abstinence, diaphragm, foam, suppository or insert, jelly or cream, and anything else.

Variables of interest included demographic predictors of our outcomes, such as age, parity, marital/cohabiting status and race/ethnicity. We included self-reported health status, as reported in the ACASI self-administered part of the survey, as a predictor based on its known correlations with objective health status [21]. We conducted preliminary bivariate analyses of obesity with each of these predictors in order to explore strength of any bivariate associations and inform multivariable regression.

3. Results

3.1. Demographics and sample characteristics

Demographic and other characteristics of the 6562 women in our sample are presented in Table 1. About 40%