

Awareness of Cardiovascular Risk Factors in U.S. Young Adults Aged 18–39 Years

Emily M. Bucholz, MD, PhD, MPH,¹ Holly C. Gooding, MD, MSc,^{2,3} Sarah D. de Ferranti, MD, MPH⁴

Introduction: Young adults with hyperlipidemia, hypertension, and diabetes are at increased risk of developing heart disease later in life. Despite emphasis on early screening, little is known about awareness of these risk factors in young adulthood.

Methods: Data from the nationally representative cross-sectional National Health and Nutrition Examination Survey 2011–2014 were analyzed in 2017 to estimate the prevalence of self-reported awareness of hypercholesterolemia, hypertension, and diabetes in U.S. young adults aged 18–39 years ($n=11,083$). Prevalence estimates were weighted to population estimates using survey procedures, and predictors of awareness were identified using weighted logistic regression.

Results: Among U.S. young adults, the prevalence of hypercholesterolemia, hypertension, and diabetes was 8.8% (SE=0.4%); 7.3% (SE=0.3%); and 2.6% (SE=0.2%), respectively. The prevalence of borderline high cholesterol, blood pressure, and blood glucose were substantially higher (21.6% [SE= 0.6%]; 26.9% [SE=0.7%]; and 18.9% [SE=0.6%], respectively). Awareness was low for hypercholesterolemia (56.9% [SE=2.4%]) and moderate for hypertension and diabetes (62.7% [SE=2.4%] and 70.0% [SE=2.7%]); <25% of young adults with borderline levels of these risk factors were aware of their risk. Correlates of risk factor awareness included older age, insurance status, family income above the poverty line, U.S. origin, having a usual source of health care, and the presence of comorbid conditions.

Conclusions: Despite the high prevalence of cardiovascular risk factors in U.S. young adults, awareness remains less than ideal. Interventions that target access may increase awareness and facilitate achieving treatment goals in young adults.

Am J Prev Med 2018;■(■):■■■–■■■. © 2018 American Journal of Preventive Medicine. Published by Elsevier Inc. All rights reserved.

INTRODUCTION

Atherosclerosis begins early in life and can lead to coronary heart disease (CHD) in older adulthood.^{1,2} Young adults with cardiovascular risk factors are at increased risk of CHD later in life, and even borderline levels of these risk factors are associated with atherosclerotic changes that persist into adulthood.^{1,3–9} Moreover, studies have shown that individuals who reach middle age with favorable levels of major cardiovascular risk factors have a significantly lower incidence of cardiovascular disease and greater longevity, highlighting the imperative for recognizing and treating cardiovascular risk factors early in life.^{10–12} As a result, many guidelines now recommend universal screening for hypertension and hyperlipidemia in children and

adolescents.^{13,14} By contrast, screening for cardiovascular risk factors in young adults is recommended primarily among patients with identified CHD risk factors.^{15,16}

Despite the emphasis on early but selective screening, little is known about patient awareness of these risk

From the ¹Department of Medicine, Boston Children's Hospital, Boston, Massachusetts; ²Division of Adolescent and Young Adult Medicine, Boston Children's Hospital, Boston, Massachusetts; ³Division of General Internal Medicine, Brigham and Women's Hospital, Boston, Massachusetts; and ⁴Department of Cardiology, Boston Children's Hospital, Boston, Massachusetts

Address correspondence to: Emily M. Bucholz, MD, PhD, MPH, Department of Medicine, Boston Children's Hospital, 300 Longwood Ave., Boston MA 02115. E-mail: emilymarie.bucholz@childrens.harvard.edu.

0749-3797/\$36.00

<https://doi.org/10.1016/j.amepre.2018.01.022>

factors in young adulthood. Prior literature suggests that the prevalence of suboptimal cholesterol, blood pressure, and blood glucose in young adults may be as high as 38%, 7%, and 4.5%, respectively.^{17–21} Although a few studies have examined undiagnosed hypercholesterolemia, hypertension, and diabetes in U.S. adults,^{19,21–27} no studies have evaluated awareness across multiple risk factors, in patients with borderline levels of these risk factors, or in young adults specifically.

Accordingly, this study aimed to quantify the prevalence of self-reported awareness among U.S. young adults with hypercholesterolemia, hypertension, or diabetes, and to identify sociodemographic and clinical correlates of awareness. Such information is critical to identifying gaps in screening and education in order to better target populations who are undiagnosed or unaware of their cardiovascular risk.

METHODS

Study Sample

Data from the 2005–2014 National Health and Nutrition Examination Survey (NHANES) were used to evaluate the prevalence of self-reported awareness of high and borderline cholesterol, blood pressure, and blood glucose in U.S. young adults aged 18 to 39 years. Conducted by the National Center for Health Statistics, NHANES uses a stratified, multistage sampling design to obtain a nationally representative sample of the U.S. non-institutionalized civilian population. It collects detailed information on participant demographic, socioeconomic, and health-related characteristics through in-home interviews and clinical assessments. All non-pregnant participants aged 18 to 39 years were included in this sample ($n=11,083$).

Measures

Detailed descriptions about blood collection and processing are provided in the NHANES Laboratory/Medical Technologists Procedures Manual. Specimens for total cholesterol, glycosylated hemoglobin, and serum glucose were stored under refrigerated conditions and shipped weekly to the University of Minnesota or the University of Missouri–Columbia for processing. Blood pressure was measured by auscultation three consecutive times after participants had been seated for 5 minutes.

High and borderline levels of blood cholesterol, blood pressure, and blood glucose were defined using the 2013 American Heart Association/American College of Cardiology Guidelines²⁸ and prior studies using NHANES.^{17,19,24,26,29,30} Hypercholesterolemia was defined as total cholesterol ≥ 240 mg/dL or current self-reported use of cholesterol-lowering medications. Borderline high cholesterol was defined as total cholesterol between 200 and 239 mg/dL. Consistent with the definition at the time of the analysis, hypertension was defined as an average systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg or current self-reported use of antihypertensive medication. Borderline hypertension was defined as an average blood pressure of 120–139 mmHg systolic or 80–89 mmHg diastolic. Because 56.9% of participants were missing fasting plasma glucose (FPG), both FPG

and hemoglobin A1c (HbA1c) were used to identify individuals with diabetes and borderline diabetes. Type 1 or Type 2 diabetes was defined as FPG ≥ 126 mg/dL or HbA1c $\geq 6.5\%$, or self-reported use of insulin or oral agents. Borderline diabetes was defined as FPG 100–125 mg/dL or HbA1c 5.7%–6.5%. Missing total cholesterol, blood pressure measurements, and FPG or HbA1c accounted for 1,139 (10.3%); 946 (8.5%); and 1,069 (9.7%) of observations, respectively.

Participants were asked if they had ever been told by a doctor or health professional that their blood cholesterol level was high, that they had hypertension or high blood pressure, or that they had diabetes, prediabetes, impaired glucose tolerance, or borderline diabetes. Those responding affirmatively were categorized as being aware of having hypercholesterolemia, hypertension, and diabetes, respectively.

Several sociodemographic and clinical variables were examined including age; sex; race/ethnicity; poverty; insurance status; education; place of birth; usual source of care; and other cardiovascular risk factors, including hypercholesterolemia, hypertension, diabetes, BMI (healthy BMI [< 25]; overweight [25–29.9]; and obese [≥ 30]), smoking status (never, past, and current), and family history of early cardiovascular disease (defined as having a close family relative with a heart attack or angina aged < 50 years). Poverty was defined as the ratio of family income to geographic poverty level $< 133\%$.³¹ Usual source of care was categorized as no usual source, hospital emergency room or outpatient department, and doctor's office or clinic/health center.

Statistical Analysis

NHANES data were analyzed in 2017 using the survey procedures in SAS, version 9.4, to account for the complex survey design.³² The prevalence of hypercholesterolemia, hypertension, and diabetes and borderline levels of these risk factors were estimated in the U.S. young adult population. Awareness for these risk factors was calculated among those with high or borderline levels and compared across participant characteristics using Rao–Scott modified chi-square tests. Multivariable logistic regression analyses were used to identify covariates associated with hypercholesterolemia, hypertension, and diabetes awareness. Covariates were selected using a backwards elimination model and retained in the final model if they were associated with risk factor awareness at the $p < 0.05$ level.

Missing covariate data were rare. There were missing data for $\geq 13\%$ of participants on one variable, 10% of participants on two variables, and 1% of participants on three or more variables. Missing covariate data were imputed using a single imputation approach. Outcome data (i.e., awareness) were missing in 33.9%, 0%, and 0.3% of participants with high or borderline cholesterol, blood pressure, and blood glucose, respectively. Outcome data were not imputed. Participants with missing cholesterol awareness data were more likely to be younger, uninsured, and to lack a usual source of care. Consent for participation in NHANES was obtained during the initial screening visit. This analysis was deemed exempt under federal regulation 45 CFR §46.101(b).

RESULTS

Among U.S. young adults aged 18 to 39 years, 8.8% (SE=0.4%) had hypercholesterolemia and 21.6% (SE=0.6%)

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات