

Education, 15-year risk factor progression, and coronary artery calcium in young adulthood and early middle age: the Coronary Artery Risk Development in Young Adults study.

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Abstract

CONTEXT: The inverse association between education and cardiovascular disease is well established, but little is known about the relationship between education and subclinical disease, which is free from medical access and treatment-related influences, or about possible mediating pathways for these relationships.

OBJECTIVE: To examine the association of education with coronary artery calcium (CAC), an indicator of subclinical atherosclerosis, and cardiovascular risk factors, and their changes as potential mediators.

DESIGN, SETTING, AND PARTICIPANTS: A population-based, prospective, observational study (Coronary Artery Risk Development in Young Adults [CARDIA]) of 2913 eligible participants (44.9% black; 53.9% women) recruited from 4 metropolitan areas (Birmingham, Ala; Chicago, Ill; Minneapolis, Minn; and Oakland, Calif) in both the baseline (1985-1986, ages 18-30 years) and year 15 examinations (2000-2001, ages 33-45 years). Education (year 15) was classified into less than high school (n = 128), high school graduate (n = 498), some college (n = 902), college graduate (n = 764), and more than college (n = 621).

MAIN OUTCOME MEASURE: Presence of CAC, measured twice by computed tomography (mean total Agatston score >0) at year 15.

RESULTS: Overall CAC prevalence in this sample was 9.3%. After adjusting for age, race, and sex, the odds ratios (ORs) for having CAC were 4.14 (95% confidence interval [CI], 2.33-7.35) for less than high school education, 1.89 (95% CI, 1.23-2.91) for high school graduate, 1.47 (95% CI, 0.99-2.19) for some college, and 1.24 (95% CI, 0.84-1.85) for college graduate compared with those participants with more than a college education (P for trend < .001). This was also consistent within each of the 4 race-sex groups. Adjustment for baseline systolic blood pressure, smoking, waist circumference, physical activity, and total cholesterol reduced the ORs to 2.61 (95% CI, 1.40-4.85) for less than high school, 1.38 (95% CI, 0.88-2.17) for high school graduate, 1.17 (95% CI, 0.78-1.77) for some college, and 1.13 (95% CI, 0.76-1.69) for college graduate compared with more than a college education (P for trend = .01), and only slightly attenuated by further adjustment for 15-year changes in risk factors.

CONCLUSION: Education was inversely associated with the prevalence of CAC, an association partially explained by baseline risk factors and minimally by 15-year changes in risk factors.