



The Association of Early-Life Health Education and Prevalence of Chronic Illness later in Life

Liam McCarthy, Quantitative Analysis Center, Wesleyan University

Introduction

- People in the United States experience the highest rates of multiple chronic conditions, and the highest death rates for avoidable or treatable conditions in the world (The Commonwealth Fund, 2023)
- The leading causes of high blood pressure, type II diabetes, and high cholesterol are widely considered to be poor eating patterns and low physical activity (NHS, 2023).
- Scholars widely believe that poor habits beginning in childhood and adolescence are strongly associated with the development of obesity and chronic illnesses later in life (Qian et al., 2019).
- School health programs can encourage and increase healthier choices among schoolchildren, which will reduce the risk for chronic illnesses as an adult (Wang & Stewart, 2013).

Methods

Sample

- Wave I of the National Study of Adolescent to Adult Health (AddHealth) is a face-to-face longitudinal study of a nationally representative sample of 6504 adolescents in grades 7 through 12 during the 1994-1995 school year. In wave V conducted in 2016-2018, the representative sample were interviewed face-to-face as adults aged 33-43. Wave V had a population of 4196 individuals.

Measures

- Students in wave I were asked yes or no questions about what health topics they had learned about in school. Individuals in the sample were asked if they had learned about the foods to eat, the importance of exercise, the dangers of smoking, and the dangers of being overweight.
- Individuals in wave V were asked about the presence or absence of diabetes, high cholesterol, and high blood pressure in adulthood.

Research Questions

- Is there a relationship between health education in school and the development of chronic diseases as an adult?
- Does the association between health education and chronic diseases differ for individuals based on income and paying attention in school?

Results

Univariate

- 1.7% of the sample in wave I received no health education and 54.4% received education on all four variables. 43.9% of the sample received education on at least one variable, but not all four.
- 30.9% of the sample in wave V had one chronic disease while 1.93% of the sample had all three chronic diseases (high blood pressure, high cholesterol, diabetes). 69.1% of the sample had no chronic diseases.

Bivariate

- A chi-square analysis showed that **those who learned more about health education in school (1.9%) were not statistically less likely to develop chronic disease** than those who did not receive health education in school (69.1%), $\chi^2=15.19$, 12 df, $p=0.2310$.

Multivariate

- After running a multiple regression, learning about three or less health topics in school ($P=0.3$) was not associated with the development of any chronic diseases after controlling for income (low or normal) and attention paid in school. Attention paid in school ($P=0.7$) and income ($P=0.1$) were also not related to the outcome.
- Gender does not appear to moderate the relationship between health education and development of chronic disease (figure 2).
- While income does appear to affect the relationship between health education and the development of chronic disease, after running a regression income is not a statistically significant moderator (figure 3).

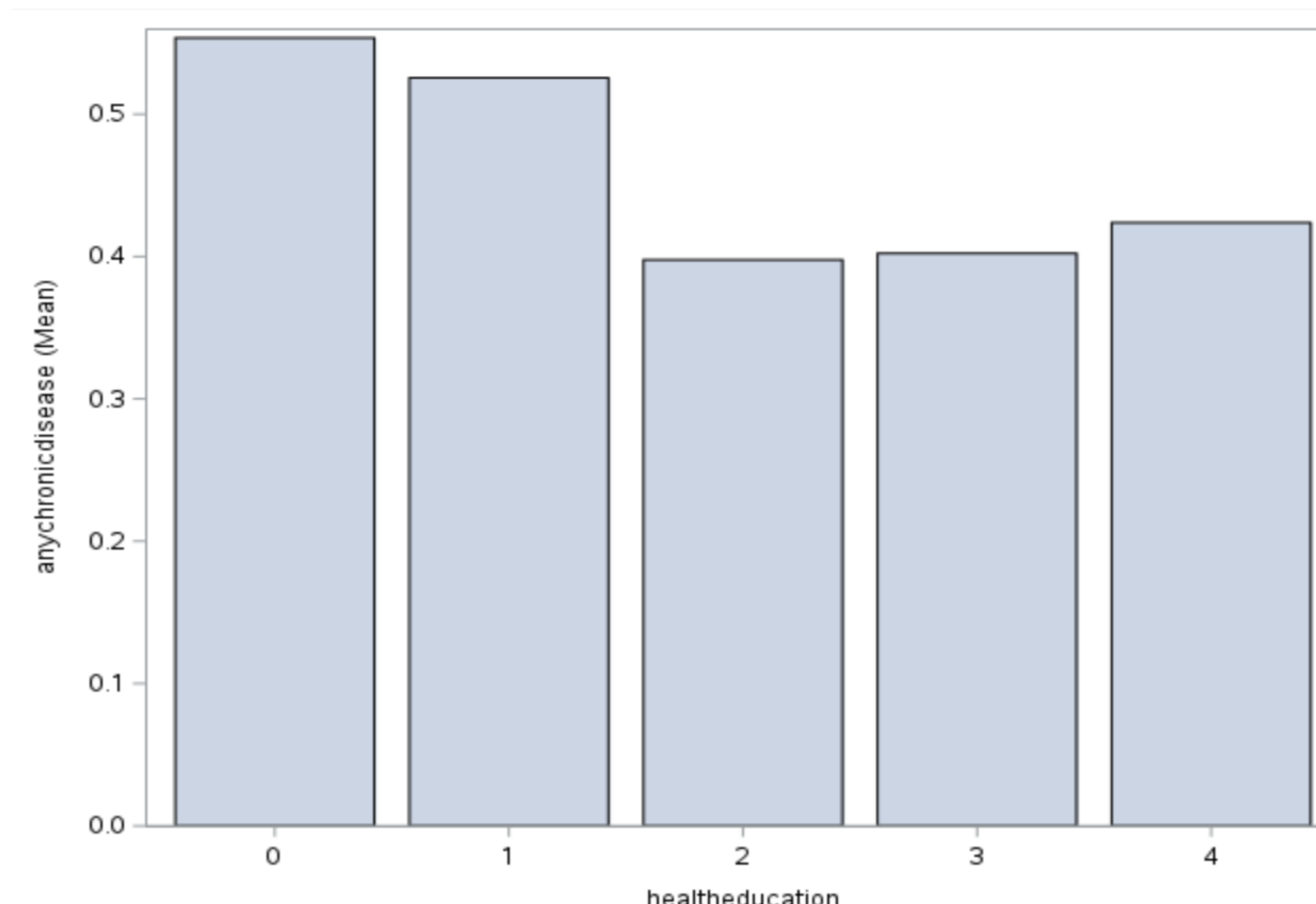


Figure 1: Bivariate graph showing level of health education and percentage of individuals who developed a chronic illness.

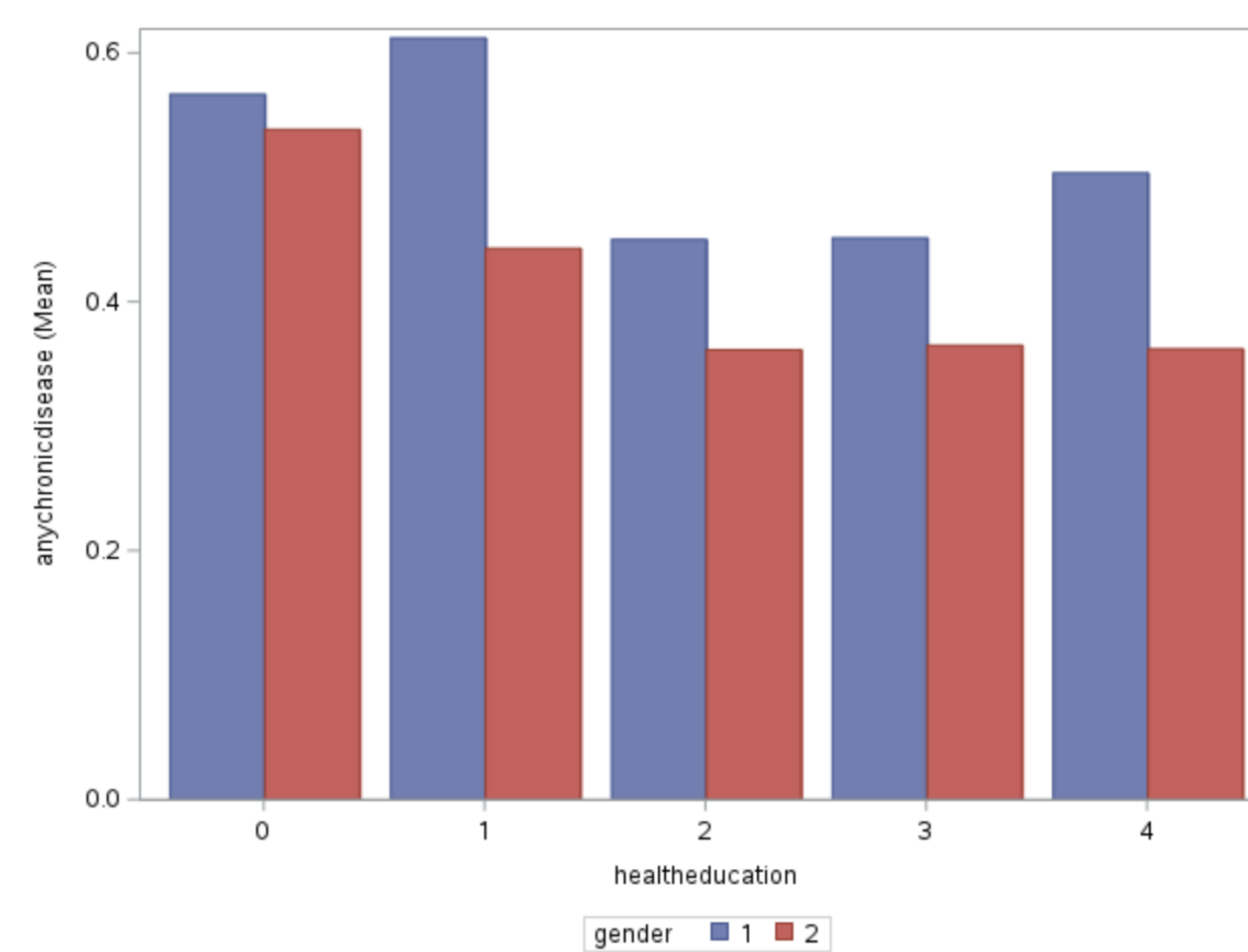


Figure 2: Multivariate graph showing level of health education and percentage of individuals who developed a chronic disease with third variable gender, that does not appear to moderate.

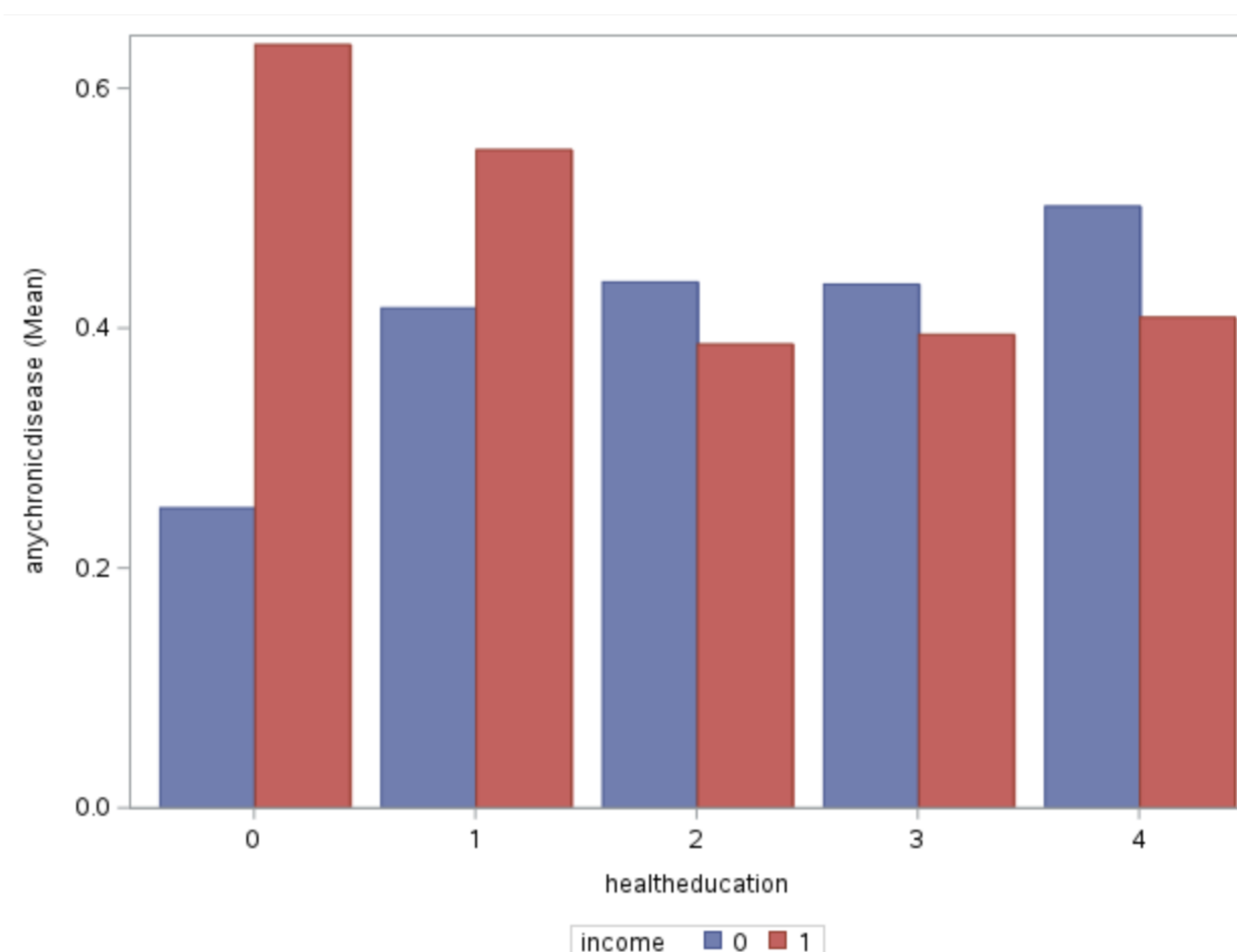


Figure 3: Multivariate graphs showing level of health education and percentage of individuals who developed a chronic disease with third variable income that does appear to affect the relationship but does not moderate.

Discussion

- Chronic diseases are caused by factors such as poor eating, exercise, and substance use habits. If individuals develop poor lifestyle choices as a child, it is likely that those lifestyle decisions will continue into adulthood, and possibly lead to an increased risk of health issues. If school health programs reduce poor lifestyle choices as a child, then in theory those who underwent school health programs should be at less risk for chronic illness as an adult.
- However, after running a multiple regression, the level of health education in school did not appear to have any statistical significance on an individual's likelihood to develop chronic illnesses.
- Further research is needed to determine whether health education is related to an individual's likelihood to have obesity and generally poor health as an adult.

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Qian, L., Newman, I. M., Yuen, L. W., Du, W., & Shell, D. F. (2019). Effects of a comprehensive nutrition education programme to change grade 4 primary-school students' eating behaviours in China. *Public health nutrition*, 22(5), 903-911. <https://doi.org/10.1017/S1368980018003713>