Physical and Socioeconomic Characteristics at Young Age as Predictors of Survival to 100: A Study of a New Historical Data Resource (U.S. WWI Draft Cards)

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Abstract

Centenarians (persons living to age 100 and over) represent a population that could be useful in identifying factors leading to long life and avoidance of fatal diseases. This study explores whether people living to 100 and beyond were any different from their peers at their middle age (30 years) in terms of their physical characteristics (height and body build), occupation and marital status.

A random representative sample of 240 men born in 1887 and survived to age 100 was selected from the U.S. Social Security Administration database. These records of men with exceptional longevity were then linked to the U.S. WWI draft registration cards collected in 1917 when these men were 30 years old. This allowed us to validate 171 cases of exceptional longevity, and obtain information on vital characteristics of male centenarians when they were young adults. Randomly selected shorter-lived men matched with centenarian men by birth year, race and county of draft registration were used as controls. This approach allowed us to eliminate confounding effects of birth cohort, race and place of draft registration on survival. It was found that the “stout” body build (being in the heaviest 15 percent of the population) was negatively associated with survival to age 100 years. Both farming and having a large number of children (4+) at age 30 significantly increased the chances of exceptional longevity by 100-200 percent. The effects of immigration status, marital status and body height on longevity were less important, and they were statistically insignificant in the studied data set. This study provides the first estimates of height, body build and other vital characteristics for the future centenarians at their young adult ages, shows that detrimental effects of obesity may have an exceptionally long time range, and that obesity at young adult age (30 years) is predictive for almost three times lower chances of survival to age 100 years.