Economics and Human Biology 15 (2014) 213–224

Contents lists available at ScienceDirect

Economics and Human Biology

journal homepage: http://www.elsevier.com/locate/ehb

The effect of rising obesity on eligibility to serve in the U.S. public health service commissioned corps☆

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ARTICLE INFO

Article history:
Received 27 April 2013
Received in revised form 16 December 2013
Accepted 27 December 2013
Available online 7 January 2014

Keywords:
Obesity
Health promotion
Public health work force

ABSTRACT

This study investigates how rising obesity has affected eligibility to serve in the United States Public Health Service Commissioned Corps (PHSCC), the uniformed service charged with protecting and promoting public health in the U.S. Data are drawn from the National Health and Nutrition Examination Surveys. Between 1959 and 2010, the percentage of eligible civilians who exceed the weight-for-height and body fat standards of the PHSCC rose from 9.05% to 18.24% among men, and from 6.13% to 23.10% among women. Simulations indicate that a further 1% increase in population body weight will result in an additional 3.42% of men and 5.08% of women exceeding PHSCC accession standards.

This study documents an under appreciated consequence of the rise in obesity: fewer Americans eligible to develop and implement a public health response to obesity through the PHSCC. This illustrates how a public health problem can undermine the public health labor force, compromising a response and risking a self-reinforcing trend. These findings are timely as the Patient Protection and Affordable Care Act (ACA) calls for a major expansion of the PHSCC.

1. Introduction

As of 2009–10, 35.7% of adult men and 35.8% of adult women in the United States are obese (Flegal et al., 2012). Obesity is the second leading cause of preventable death and contributes to a host of comorbidities including Type II diabetes, asthma, cancer, osteoarthritis, and heart disease (Dixon, 2010). As a result, obesity raises health care costs by $2741 annually per obese adult, or $190.2 billion per year, representing 20.6% of U.S. national health expenditures (Cawley and Meyerhoefer, 2012).

This paper documents an underappreciated public health consequence of the rise in obesity in the U.S.: reductions in eligibility to serve in the U.S. Public Health Service Commissioned Corps (PHSCC). The objective of this paper is to document the extent to which rising obesity reduced the percent of eligible U.S. civilians who satisfy PHSCC accession standards regarding weight-for-height, between 1959 and 2010. A secondary objective of this paper is to simulate how future changes in population weight may influence the percent of education- and age-eligible Americans who exceed these standards.

The ability of the PHSCC to attract a qualified labor force is of considerable relevance for public health, because the officers of the PHSCC perform a wide variety of activities to promote and protect health worldwide. The PHSCC is one

☆ For helpful comments and suggestions, we thank Editor Inas Rashad Kelly, two anonymous referees, PHSCC officers, and Joseph Sabia for his discussant comments. We also thank, for their helpful feedback, participants at the 2012 American Society of Health Economists biennial conference.

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http://dx.doi.org/10.1016/j.ehb.2013.12.007

of America's uniformed services, consisting of over 6500 full-time public health professionals (e.g. physicians, dentists, nurses, researchers, dietitians, and social workers) who are overseen by the U.S. Surgeon General. The mission of the PHSCC is "Protecting, promoting, and advancing the health and safety of the Nation," which it achieves in a wide variety of ways: preventing and controlling disease (including promotion of healthy lifestyles); responding to emergencies; improving mental health; ensuring that food, drugs, and medical devices are safe for consumers; conducting medical research; and collaborating with other nations and international agencies to promote global health (U.S. Public Health Service, 2012). The PHSCC is frequently deployed domestically and internationally to provide direct care and coordinate the emergency response to public health disasters, such as the 1995 bombing of the Murrah Federal building in Oklahoma City, the September 11th, 2001 terrorist attacks, Hurricane Katrina in 2005, the Deepwater Horizon oil spill in 2010, the Haiti earthquake of 2010, and Hurricane Sandy in 2012.

The PHSCC also plays an important role in addressing obesity in the U.S. It directly addresses the high prevalence of obesity (and the consequences of Type II diabetes) on Native American reservations, and among other disadvantaged and high-risk populations. This role is critical because both obesity and Type II diabetes rates in these groups are substantially higher than in the general population. For example, the prevalence of obesity among Native American adults is 39.6% compared to 26.8% for non-Hispanic white adults and Native American adults are 2.3 times more likely to be diagnosed with Type II diabetes than non-Hispanic white adults (Centers for Disease Control and Prevention, 2012; Indian Health Service Division of Diabetes Treatment and Prevention, 2012). Moreover, the PHSCC addresses obesity in the rest of the country through the work of its dietitians and the research conducted by its scientists.

The PHSCC faces special challenges in dealing with obesity among its ranks, even compared to the military services, making it especially important that new hires are already physically fit. First, PHSCC officers are widely dispersed geographically, working on Native American reservations, immigration facilities, and prisons while others are assigned to the Food & Drug Administration, Centers for Disease Control and Prevention, National Institutes of Health, and the Department of Defense. As a result, the leadership of the PHSCC lacks direct "eyes on" supervision of officers' fitness and weight. In addition, the PHSCC, unlike the military services, does not have a specially-designed and monitored physical fitness program for its overweight officers. Thus, it is harder for the PHSCC to enforce weight standards among current officers, making it particularly important to admit officers who are in compliance with weight standards. The PHSCC also differs from the other uniformed services in that a high percentage of those who join the PHSCC stay for decades. As a result, Commissioned Corps officers may gradually come to exceed the standards as they gain weight with age; this was described to the authors by a PHSCC officer as a "substantial" problem for the cohorts of officers who joined prior to implementation of PHSCC's Active Duty weight and fitness standards in the 1990s. This problem is gradually improving as older and less-healthy officers retire or otherwise exit active duty.

Better understanding potential obstacles to PHSCC recruitment is timely because the organization is entering a period of expansion. The Patient Protection and Affordable Care Act (ACA) removed the current cap on the number of Commissioned Corps members so that the PHSCC can expand to meet the nation's public health needs. In recognition of the limited number of qualified potential applicants, the ACA further authorizes the Surgeon General to establish the U.S. Public Health Sciences Track to train needed health professionals. This Track will provide participating students with tuition remission and an annual stipend for the duration of their training, and participating students will be accepted as Commissioned Corps officers in the PHSCC with a two-year commitment to service for each year of covered training.

An increasing share of the burden of public health is falling on the PHSCC. In response to budgetary pressures, state and local health agencies are downsizing their public health efforts. Between 2008 and 2010, 89% of state health agencies reduced their services and 44,000 state and local public health jobs were cut (Association of State and Territorial Health Officials, 2011; National Association of County and City Health Officials, 2010). As a result, the PHSCC bears increased responsibility for responding to public health problems. In summary, the PHSCC may be facing a decrease in the potential pool of qualified applicants precisely at the time it is experiencing an increased demand for its services.

This paper is structured as follows. Section 2 describes data and methods. Results are reported in Section 3, and Section 4 provides a discussion of findings, study limitations, and directions for future research.

2. Data and methods

2.1. PHSCC accession standards for body mass index and percent body fat

Eligibility to serve in the PHSCC requires meeting educational, moral, and medical standards (U.S. Public Health Service, 2012). Relevant to this study, successful applicants must meet standards for body mass index (BMI), which is equal to weight in kilograms divided by height in meters squared,[2] and percent body fat (PBF). Specifically, applicants are weighed and measured by a health professional (e.g., a physician). If their BMI is less than or equal to 27.5, they are classified as meeting the standards. If their BMI is greater than 27.5, their PBF is measured. The maximum allowable PBF for men is: 24% for ages 21–29, 26% for ages 31–39, and 28% for those aged 40 or older. For women, the maximum allowable PBF is 32% for ages 21–29, 35% for ages 31–39, and 38% for those aged 40 or older. If the applicant exceeds both the maximum BMI and PBF values, the applicant is deemed

[2] Adult weight classifications based on BMI are: underweight is a BMI of less than 18.5, healthy weight is a BMI of 18.5–24.9, overweight is a BMI of 25–29.9, obese is a BMI of 30 or higher.