



Implementing Exercise as Adjunctive Therapy for Patients with Obesity and Other Related Chronic Diseases in Rural Appalachia

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Abstract

Physical activity is an effective, noninvasive, preventative measure for various chronic diseases including obesity. It is safe for use in family practices and commonly contributes to obesity and related chronic conditions, particularly in rural Appalachia. The purpose of this study was to create and personalize exercise plans for patients with obesity and/or other chronic metabolic diseases and evaluate the effect of physical exercise on the patients’ mental and physical health. Overall, there was positive feedback from patients who completed the program, with notable increase in motivation and energy levels as well as improved sleep quality.

Introduction

Obesity, or a body mass index above 30 (1), is a very common and serious chronic disease. Centers for Disease Control and Prevention (CDC) states over two in five adults in the United States have obesity, many of whom also have other metabolic and non-metabolic chronic diseases (2). CDC data shows “...58% of U.S. adults with obesity have high blood pressure, a risk factor for heart disease...approximately 23% of U.S. adults with obesity have diabetes” (2). Figure 1 visualizes the prevalence of obesity in the United States with Arkansas, Mississippi, and West Virginia having an obesity prevalence of 40% or greater (4).

The HPCD wrote a plan to improve obesity rates by “Creating environments throughout [the] state that support healthy eating and active living...” (5). Figure 2 shows the prevalence of physical inactivity of West Virginian adults from 1987 to 2014.

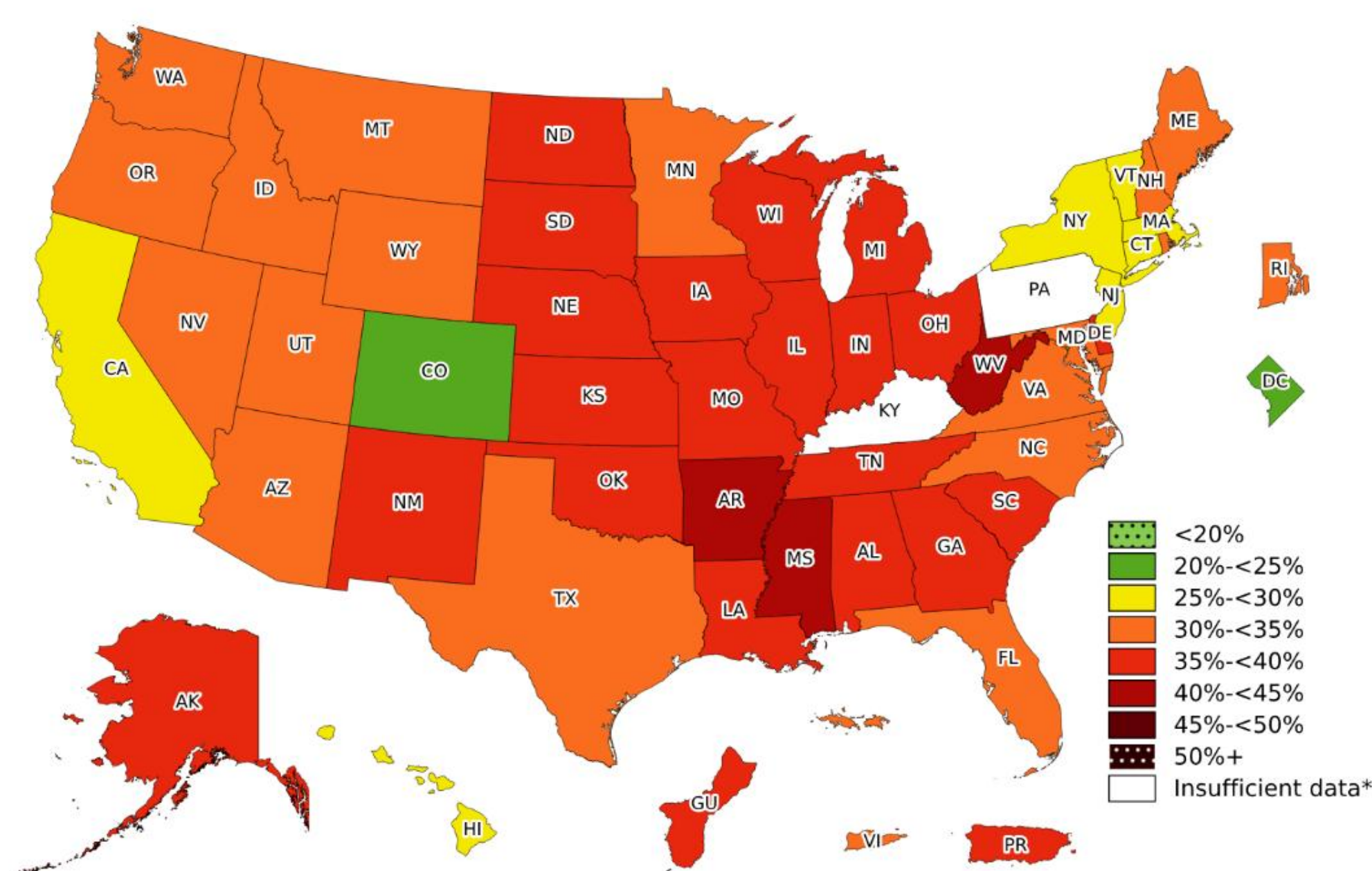
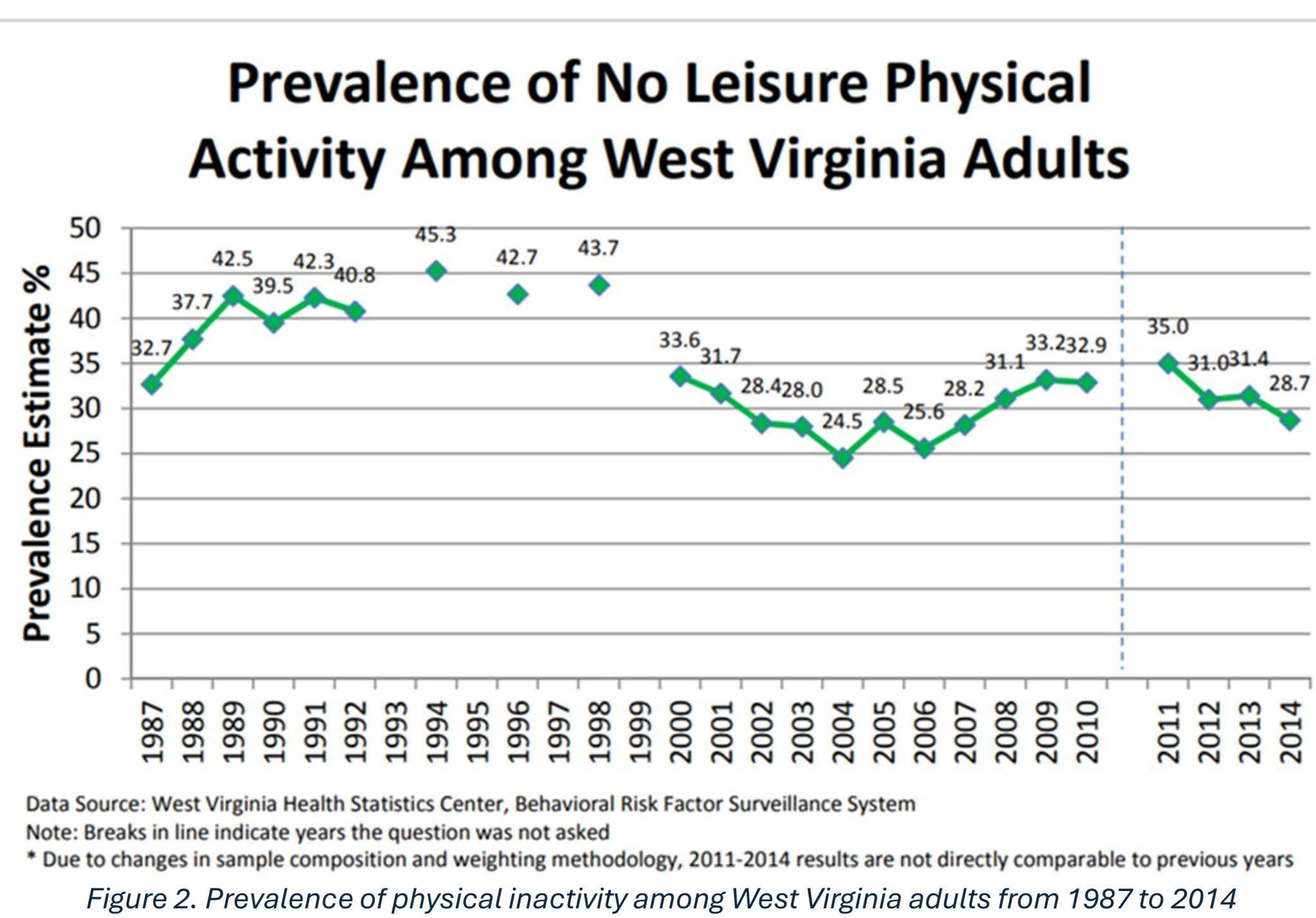


Figure 1. Obesity prevalence in the United States of America. Adapted from Centers for Disease Control and Prevention

The cost of healthcare is a major contributing factor in areas with a high prevalence of obesity. The West Virginia Division of Health Promotion and Chronic Disease (HPCD) states, “...obesity among adults in West Virginia: Results in \$1.4-\$1.8 billion in preventable direct medical costs...Obese adults spend 42% more on direct healthcare costs; morbidly obese costs are 81% greater than normal weight adults...” (5). This does not account for other chronic diseases a patient may have.



Physical activity was the component of this initiative that was studied.

Methodology

Participants were referred to the study by family practice physicians at the Robert C. Byrd Clinic and if they were diagnosed with at least one obesity-related chronic disease. Before starting the program, participants were screened for the entry criteria, and written informed consent was obtained. Personalized exercise therapy following American College of Sports Medicine recommendations was provided. 150 minutes of moderate aerobic and/or resistance exercise per week was suggested. Exercise was completed alongside the researchers to ensure the participants’ safety.

Six participants were enrolled so far: two were lost to attrition, and two successfully completed the program. The average BMI of these participants was 35.0 (SD= 7.4). 83% of the participants were obese, 60% of the participants had hyperlipidemia, and all participants were female. All data calculations were performed using Excel functions. One patient who successfully completed the program reported less exacerbation of arthritic flare-ups, better quality of sleep, feeling more energized, and feeling more motivated to continue exercising.

To further improve this study and the results, more participants must enroll in and successfully complete the exercise program. Long-term benefits of exercise therapy will rely on patient continuation of physical activity following the program, routine physician follow-up appointments, and blood work. Follow-up surveys can also be administered to those enrolled in the program. Further research can also focus on other contributors of obesity and other related chronic diseases such as cost of healthcare, diet, and mental health.

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