

South Carolina Researchers Study Trajectories of Body Mass Index Among Active-duty U.S. Army Soldiers

Researchers from the [Arnold School of Public Health](#)'s departments of [Epidemiology and Biostatistics](#) and [Health Promotion, Education, and Behavior](#) at the University of South Carolina have partnered with collaborators from the U.S. Army Research Institute of Environmental Medicine, Stanford University, and Baylor University to examine the trajectories of body mass index among U.S. soldiers. Their paper was published in [Preventive Medicine Reports](#).

Establishing the shape and determinants of trajectories of body mass index (BMI) among soldiers is critical given the importance of weight management to military service requirements. To establish the shape and determinants of BMI trajectories among soldiers, the researchers aimed to (1) model the overall BMI trajectory of soldiers, (2) find the most common trajectory groups among soldiers, (3) investigate the relationship between BMI trajectories and sociodemographic and military-specific characteristics, and (4) determine if there were soldiers with large fluctuations in BMI.

The study population included all U.S. Army soldiers on active-duty between 2011 and 2014 who were age 17-62 ($n = 827,126$). With longitudinal data from the Stanford Military Data Repository, the authors used group-based trajectory modeling to identify the BMI trajectories of soldiers and multinomial logistic regression to estimate associations between soldier characteristics and trajectory membership.

They found four distinct BMI trajectory groups: increasing, decreasing, constant, and inconstant. The constant, increasing, and decreasing trajectories were similar in shape and percentage between men and women. The constant trajectory had the fewest soldiers who exceeded weight standards or had duty limitations.

The increasing trajectory was associated with marriage and fewer service years. The decreasing trajectory was associated with more service years and higher educational attainment.

The inconstant trajectory differed in shape between men and women. Over 6% of men and 12% of women had fluctuations in BMI indicative of weight cycling. The researchers concluded that understanding the characteristics associated with BMI trends may assist the Army in targeting resources aimed to improve soldier health and combat readiness.