

## Carbonation concerns: Is there a relationship between time spent drinking, beverage patterns and overweight in male adults?

Amanda Goldstein<sup>1</sup>  
Jane Kolodinsky, Ph.D.<sup>2</sup>

Obesity continues to be a public health concern in the United States and throughout the world. Currently, 66 percent of U.S. adults are overweight, 34 percent of which are obese (CDC, 2008). The obesity trend is alarming because of the numerous chronic diseases associated with it (Must, et al., 1999; Mokdad, et al., 2004) and the health care expenditures attributable to being overweight (Finkelstein, et al., 2003; Sweeney, 2007). Furthermore, overweight and obesity are contributing to a loss of human capital in the labor force (Wolf and Colditz, 1998).

While there is no clear causal pathway to obesity, it is necessary to examine the impacts of eating and drinking behaviors on weight. The release of the Food and Eating Module of the American Time Use Survey (ATUS) now makes possible the exploration of the direct relationship between time spent drinking and obesity. By imputing beverage purchasing data from the Consumer Expenditure Survey into the ATUS, we are able to examine the impact time use and purchased inputs have on the building of a healthy weight.

Specifically, this study explores individual beverage consumption patterns by clustering individuals according to their eating and drinking behaviors. Six behavioral patterns related to food practices and beverage consumption were identified from the cluster analysis. There were both normal weight and overweight individuals in each behavioral cluster. Hence, behavioral time use patterns alone do not reveal a direct relationship to overweight. It is, therefore, necessary to examine food and beverage expenditures in detail to identify what individuals are consuming when eating and drinking. It is also necessary to examine time uses related to building a healthy weight. Specific lifestyles can then be linked in a holistic way with weight status.

Regression was used to test the effect of cluster membership and other time uses not related to eating or drinking on obesity. Beyond demographic variables, sedentary behavior, physical activity, and membership to the cluster that spent the largest beverage budget shares on sweetened beverages, juice, and milk were found to be significant predictors of BMI. However, the regression model explained less than thirty percent of the difference between respondent's actual BMI and predicted BMI.

The results of this study clearly show that the causes of obesity are multi-dimensional. Food and beverage consumption alone do not explain obesity, nor does time spent engaged in different activities. Rather it is the interplay between patterns of all of those behavioral attributes that are related to weight status. This study highlights the tangled web of relationships between time use, beverage consumption patterns, and demographic variables and draws attention to the need for more research utilizing a holistic and systemic approach. Without such an approach, deep understanding of the complexities of obesity will be hindered and the epidemic will continue to plague this country.

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<sup>1</sup> M.S. Candidate, Department of Community Development and Applied Economics, University of Vermont

<sup>2</sup> Professor and Chair, Department of Community Development and Applied Economics, University of Vermont, Burlington, VT 05405 M.S. Candidate, Department of Community Development and Applied Economics, University of Vermont