



Frequency and Time of Day That Americans Eat: A Comparison of Data From the American Time Use Survey and the National Health and Nutrition Examination Survey

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What Is the Issue?

The American Time Use Survey (ATUS) collects detailed information about how Americans age 15 and older spend their time. Time is particularly important with respect to dietary and diet-related health outcomes. With rising constraints on time, many Americans eat on the go or while working; however, the ATUS does not capture these “secondary” eating occasions, which are defined as eating while engaged in another activity considered primary by the individual. To fill this gap, ERS partnered with USDA’s Food and Nutrition Service and the National Cancer Institute to design the Eating & Health Module (EHM), a supplement to the ATUS that collected information on secondary eating between 2006 and 2008 and again between 2014 and 2016.

Previous studies have shown that the EHM data on eating occasions were not otherwise captured by the ATUS. However, no study has compared the EHM data on secondary eating with similar data collected in other high-quality national surveys to evaluate how well the ATUS and the EHM (ATUS-EHM) do at collecting information associated with time-related eating patterns. This study compares the time of day and the number of eating occasions of U.S. adults as reported in the ATUS-EHM to those in the dietary intake data in the National Health and Nutrition Examination Survey (NHANES), which are currently the best available data for estimating average daily dietary intake among Americans. Findings may help lead to more appropriate use of the data to study the factors that affect eating behaviors and diet-related outcomes of the U.S. population.

What Did the Study Find?

While the general pattern of eating throughout the day is similar in the ATUS-EHM data and the NHANES data, the ATUS-EHM systematically underestimates eating occasions throughout the day. In particular, the ATUS-EHM estimates are less than those of NHANES for each hour of the day, which is likely due to differences in data collection methods used in the two surveys.

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- On average, the ATUS data alone capture only 35.1 percent of all daily eating occasions reported in NHANES. The addition of the supplementary EHM data increases the average to 47.4 percent.
- Corresponding to the greater number of daily eating occasions captured in NHANES, the mean time between eating occasions is shorter in NHANES than in the ATUS-EHM (186.9 minutes versus 322.5 minutes).
- The share of respondents reporting four or more eating occasions per day is much higher for NHANES (89.6 percent) than for ATUS-EHM (22.0 percent).

When the analysis excludes more easily forgotten eating occasions—that is, drinks and snacks—from the NHANES data, the gap between the NHANES and ATUS-EHM estimates decreases.

- The ATUS-EHM data capture 93.1 percent of all main eating occasions reported in NHANES.
- The mean time between meals in NHANES increases to 335.3 minutes, which is only 12.8 minutes more than the mean time in the ATUS-EHM.
- Similarly, the share of NHANES respondents who report eating four or more times in a day falls to 17 percent, which is 5 percentage points lower than the estimated share of ATUS-EHM respondents.

These results suggest that the ATUS-EHM probably captures main meals best and is more likely to miss smaller eating occasions, such as snacks and beverages. Researchers who are interested in estimating eating activity should be aware that even when using the EHM data together with the ATUS data to capture primary as well as secondary eating occasions, eating activity will be underestimated. The results also suggest that incorporating a multiple-pass method of dietary recall, such as the one used in NHANES, into the ATUS-EHM might increase the number of eating occasions captured.

How Was the Study Conducted?

This study used data from the 2014-16 ATUS and the EHM as well as data from the 2013-16 NHANES. The ATUS is sponsored by the U.S. Bureau of Labor Statistics and conducted by the U.S. Census Bureau. NHANES is conducted by the Centers for Disease Control and Prevention. ERS researchers counted the number of times in a day that eating a meal or snack was reported to be a main activity in ATUS (primary eating) and the number of times eating occurred while respondents were also doing something else (secondary eating), as reported in the EHM. These data were compared to similar measures in NHANES. In addition, researchers compared the time of day when eating occurred in both surveys. Differences between the two surveys were compared using a Monte Carlo simulation to calculate confidence intervals in the estimated means and proportions.