Abstract: How accurately can we recall food timing? A validity study of a novel food timing questionnaire.

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Introduction: Emerging epidemiological and experimental studies suggest that food timing associates with obesity, weight-loss success, and other adverse cardiometabolic health outcomes. Although anecdotally simple to ascertain, the validity of recalled food timing has not been evaluated against prospectively collected data and current methods do not account for day of the week. Our objective is to validate a novel, recall-based tool, the Eating Pattern Questionnaire (EPQ), aimed at assessing food timing in healthy, free-living populations for work/school days (WD) and non-work days (NWD), against up to 2 weeks of prospectively collected 24-hour food records (FR).

Methods: A total of 95 participants (72% female; mean age: 33±11 years) from the ongoing Shift Work, Heredity, Insulin, and Food Timing (SHIFT) Study (ClinicalTrials.gov: #NCT02997319) were included. On the EPQ, participants were asked to indicate whether food/beverages are always/sometimes/never consumed during every hour of a WD and NWD (hourly increments). On FR, participants were instructed by trained nutritionists to indicate type and time of all food/beverage items consumed. Food timing was averaged for WD and NWD separately across all completed FR. Five clock times in hour:minute were derived from the two tools: first/last eating episode and breakfast, lunch, and dinner. Concordance was quantified using Kendall’s correlation of concordance (W).

Results: A higher level of concordance was observed for clock time of first eating episode on WD (W=0.867) compared to NWD (W=0.568). Clock times for breakfast, lunch, and dinner had comparable concordance on WD and NWD, with highest concordance observed for lunch (WD: W=1; NWD: W=0.886), followed by breakfast (WD: W=0.759; NWD: W=0.745) then dinner (WD: W=0.641; NWD: W=0.665). Lastly, low concordance was found for clock time of the last eating episode for both WD and NWD (WD: W=0.220; NWD: W = 0.313).

Discussion: By comparing clock times estimated from a recall-based questionnaire against prospectively collected food timing data, we observe that individuals may more accurately recall the timing of meals earlier on in the day, particularly on work days, compared to meals later in the evening. These findings provide first insights into the accuracy of food timing data ascertained through self-reported in cohort studies.

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