Contextual factors associated with snack food profiles in US adults: National Health and Nutrition Examination Survey 2017–2018

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In recent decades, adults' snacking frequency has increased concomitant with the overconsumption of unhealthy "snack" foods.[1–3] An understanding of the contextual factors associated with adults' food choices at snacks are needed to develop tailored healthy snacking messages at the population level. This study aimed to examine the contextual factors associated with profiles of food consumption at snacks in a nationally representative sample of US adult snack consumers. Over two 24-hour recalls, adult participants ($n = 3754; \geq 19$ years) in the National Health and Nutrition Examination Survey 2017–2018 reported their dietary intake at snacks ($n = 11,929$ snacks) and reported whether the snack was consumed at home (yes/no) and the location from where foods were sourced (e.g., convenience outlets, grocery store, fast food restaurants). Latent variable mixture modelling[4] was used to determine snack food profiles from 20 food groups based on the What We Eat in America classification system. Adjusted chi^2-tests were used to examine the resultant snack profiles by time-of-day. Multilevel regression models, adjusted for age, gender, and recall day, were used to estimate associations for eating at home and food source location with each snack profile. Four distinct snack profiles were extracted. The largest profile, labelled "Unhealthy", represented 65% of all snacks and comprised savory snacks, sweet bakery products, sweetened beverages, candy, and alcohol. Profiles labelled "Fruits" (13%), "Coffee/tea" (11%)" and "Grains" (i.e., breads and cereals; 11%) were also identified. Food groups that were more likely to be consumed together with these profiles included water with "Fruits"; fats and oils, sugars, and sweet bakery products with "Coffee/tea"; and animal protein foods, vegetables, and condiments and sauces with "Grains". The "Coffee/tea" and "Fruits" profiles were mostly consumed in the morning and afternoon, respectively, and the "Grains" and "Unhealthy" profiles in the evening ($p < 0.001$). Compared to the other profiles, the "Unhealthy" and "Grains" profiles had higher odds of being consumed at home (OR: 1.36, 95% CI [1.13, 1.64] and OR: 1.34, CI [1.04, 1.72], respectively), whereas the "Fruits" profile had lower odds (OR: 0.47, CI [0.36, 0.60]). The "Unhealthy", "Fruits", and both the "Coffee/tea" and "Grains" profiles had higher odds of being sourced from convenience outlets (OR: 2.44, CI [1.67, 3.58]), grocery stores (OR: 1.98, CI [1.39, 2.83]) and fast-food restaurants (OR: 3.28, CI [1.92, 5.58] and OR: 2.05, CI [1.29, 3.27]), respectively. We identified four snack profiles that were associated with contextual factors. Most snacks consumed by US adults comprised unhealthy foods and were associated with eating at home and being sourced from a convenience outlet. These findings suggest there is significant work to do to improve the quality of food intake at snacks. Public health strategies that assist adults to prepare and purchase healthier snacks are needed.

References

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