Eating and Mental Health in the Context of CampusLife

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Study Design

Motivation

The motivation of this project is to understand how eating-oriented behaviors can help researchers better understand well-being states of individuals.

Background

- Change of states in mental health outcomes are often reflected by changes in physical activity patterns.
- Eating is one of the most crucial events in a day that often dominates the activity level of an individual.

Research Questions

RQI: Can we infer eating moments "in-the-wild" based on the wrist movements of individuals?

RQ2: How can we gather eating habits of individuals in-the-wild?

RQ3: How does the change in eating habits (e.g., the frequency of taking meals) correlate with change in the the mental (mood, stress, depression, etc.) and well-being of college students?

Approach

A mixed method study was conducted during Summer 2018 and Fall 2018 to understand the eating behaviors of college students. Based on our findings, we designed an EMA-based study to answer our second and third research questions. Finally, we recruited 28 participants during Summer 2019 and Fall 2019 to understand how eating behaviors are correlated with mental health of Georgia Tech students. Eating episodes of these students were automatically detected using a commercial smartwatch.



Eating Habits and Mental Health



Figure 1: Patterns of Eating Frequency with Mental Health

References: I. Thomaz, Edison, Irfan Essa, and Gregory D.Abowd. "A practical approach for recognizing eating moments with wrist-mounted inertial sensing." In Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing, pp. 1029-1040.ACM,

Eating Habits and Mental Health

- Skipping meals were highly correlated with higher levels of stress, depression, and anxiety.
- Students tend to skip more meals during the week and recover during the weekends.

	Stress	Anxiety	Depression
Breakfast Frequency	-0.33	-0.27	-0.20
Lunch Frequency	-0.53	-0.55	-0.35
Dinner Frequency	-0.11	-0.03	0.00
Meals with Company	-0.35	-0.41	-0.31

Figure 2: Correlation Between Meal Frequency with Stress, Anxiety, and Depression.

Eating Moment Recognition



Figure 3: Performance comparison of the eating detector's performance with the baseline predictor $\left[1\right]$

