Campus Environment, Diet and Activity

How does the campus environment impact health related behaviors among Texas A&M University students?

Background

Obesity is a significant public health problem in the United States, affecting individuals regardless of age, ethnicity, gender or income. There are critical periods during one’s lifespan, including the transition time between adolescence and young adulthood (college age), when significant weight gains occur. To address this challenge, interventions are needed that include the impact of the environment on health related behaviors. Campus environments can be viewed as ready-made research settings in which interventions can be tested for improving behavioral and lifestyle habits. Environmental interventions can be efficient and effective on such settings and during such periods. This study focused on the 446 (baseline survey) and 235 (follow-up survey) out of 3,461 freshmen college students living in the northern and southern clusters of residence halls at Texas A&M University (TAMU) in College Station, Texas, during the 2008-2009 academic year. The goal of this study was to evaluate the association between the campus environment, student dietary behavior (energy intake), and physical activity (energy expenditure).

Figure 1:
Map of the residence halls & major food option locations on TAMU Campus

What were the research questions?
The research questions were addressed through a series of primary and secondary study objectives. These included: comparing diet and physical...
activity behaviors among normal-weight, overweight, and obese groups of students; comparing diet and physical activity behaviors among the residents of the northern vs. southern resident hall clusters, which feature different physical activity and food environments; and collecting preliminary data for a larger, multi-campus study with a longitudinal research design. Focus group discussions (11 participants total) and on-line surveys (two rounds with 356 and 179 respondents each), along with Geographic Information System and Global Positioning System devices for collecting environmental data, were utilized in this study.

What did we learn?
The Freshmen year is an important time when many lifestyle changes occur. Students are influenced by past behaviors as they are establishing new habits. Many student respondents experienced changes in their weight, health condition, diet, and physical activity behaviors after moving to the TAMU campus. The majority (52%) of students maintained their weight, while 31% reported gaining weight and 17% reported losing weight. Of those who gained weight, 18% of the students gained 15 or more pounds (as predicted by the Freshmen 15 phenomenon); however, the average weight gain was approximately 10.5 pounds.

Convenience and accessibility were key factors influencing both student food selection and physical activity behaviors. Many students reported that healthy food options at dining halls, vending machines, and food kiosks on campus were limited, but food vendors were located conveniently to fit into their busy daily routines. When healthy food choices were available students were likely to select them.

Demographic, behavioral and built environmental factors all played a role in physical activity behaviors. Utilitarian physical activities, such as walking or bicycling, occurred frequently throughout the day as part of living on campus, while spontaneous recreational activities were rare. For those who did engage in planned activity, the Student Recreation Center was the most important and frequently used facility. The agreed perception was that the bicycling infrastructure on campus was not sufficient to support bicycling; and the campus environment was not visually attractive enough to encourage recreational walking and bicycling.

The environmental influences on physical activity are inconclusive based on this study. But, certain factors such as automobile traffic, lack of interesting destinations, inadequate lighting, street crossing safety and insufficient bicycle facilities were commonly reported as perceived barriers to physical activity, especially to walking and bicycling (Figures 2 and 3).

Summary & Conclusions
This study is ongoing and future analyses will explore specific environmental barriers and motivators of a healthy diet and physical activity among different groups of campus residents. Future research is also planned to include:

- Consideration of body image, weight management practice, and eating disorders as additional factors that may impact student behavior related to health
- Improved measurement of the key social environments (e.g. peer influence)
- Consideration of social network information to help recruit study participants and as a potential independent variable influencing diet and physical activity behaviors
- Development of a grant proposal that uses a longitudinal cohort study that further expands interdisciplinary collaboration in obesity research