



Active Commuting at a Large University Campus

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Abstract

BACKGROUND: Physical activity (PA) is known to contribute to health benefits, including enhanced cardiovascular fitness, reduced chronic disease, and weight maintenance. Recent research has shown several short bouts of exercise added up throughout the day are effective in obtaining health benefits. The purpose of this study was to understand patterns and influences of active commuting (AC) behavior.

METHODS: An online study of AC patterns was conducted at a large Midwestern university campus. Students, faculty and staff answered questions about frequency of walking, biking, and driving to campus. Respondents were asked about current PA, influences on commuting habits, and geographic characteristics related to commuting.

RESULTS: 798 respondents participated. 54.7% were female and 44.5% were students. Self-reported distance from home to campus was the most powerful determinant of active commuting. Individuals living within a self-reported twenty minute walk from campus walked twice as often as those living further, while those living within a twenty minute bike ride biked seventeen times more frequently than those reporting a greater distance. Students were six times more likely to actively commute. The three most influential reasons for mode of commute were: time constraints, weather, and traveling to other points before or after school. Safety from crime and traffic were positively associated with AC.

CONCLUSION: With current economic and environmental concerns, AC should be considered a viable and sustainable behavior that can be targeted with future public health and health promotion initiatives.

Background

- According to 2007 BRFSS nationwide data, only 50% of adults engage in 30 or more minutes of moderate intensity physical activity 5 or more days per week. Only 28% of adults do 20 or more minutes of vigorous physical activity 3 or more days per week (CDC, 2007).
- Regular bouts of moderate intensity exercise have been shown to reduce the risk of developing chronic lifestyle diseases, such as coronary heart disease, hypertension, and diabetes mellitus (USDHHS, 1996).
- PA research shows that health benefits can be accrued from several 10 minute bouts of moderate physical activity throughout the day (Pate, 1995). DeBusk also found that multiple short bouts of moderate-intensity exercise increased aerobic benefits. The opportunity to incorporate short bouts of exercise for health benefits may help individuals meet PA recommendations (DeBusk, 1990).
- Physical activity declines during adolescence (USDHHS, 1996), therefore college students are at risk for not meeting PA recommendations and developing sedentary lifestyle habits.
- The purpose of this study was to examine active commuting behavior and influences on commuting patterns on a college campus.

Methods

- An online survey composed of 29 questions was created to understand activity levels of Kansas State University students, faculty and staff, and to obtain current data on method of travel to and from campus.
- The survey was voluntary and approved by the KSU Institutional Review Board.
- The survey was offered from April 2nd to May 10th, 2008.
- Basic frequencies and means were used for descriptive statistics. T-tests and Chi-square analyses were used to compare differences between groups.

Recruitment

- The survey was sent to various email listserves to reach faculty, staff and students across the university.
- To obtain satisfactory response rates, completion of the survey was offered as an extra credit opportunity in two Kinesiology courses in April 2008.

Measures

- Demographic questions asked information about the respondent's age, sex, role at K-State, and college within the university.
- The survey asked about participant's moderate and vigorous PA.
- The survey asked how many times per week an individual walks, bikes, and drives to campus.
- Length of travel time from home to a frequented building on campus was asked for walking and biking.
- A five point Likert scale was used to determine factors that could impact an individual's choice on transportation to campus.
- Respondents were asked to include their street address for distance mapping purposes.
- Additional questions related to parking included comparing the current parking situation to years in the past, and where the respondent parks when driving to campus.

Results

The survey was completed by 798 faculty, staff and students from KSU.

Respondent demographics:

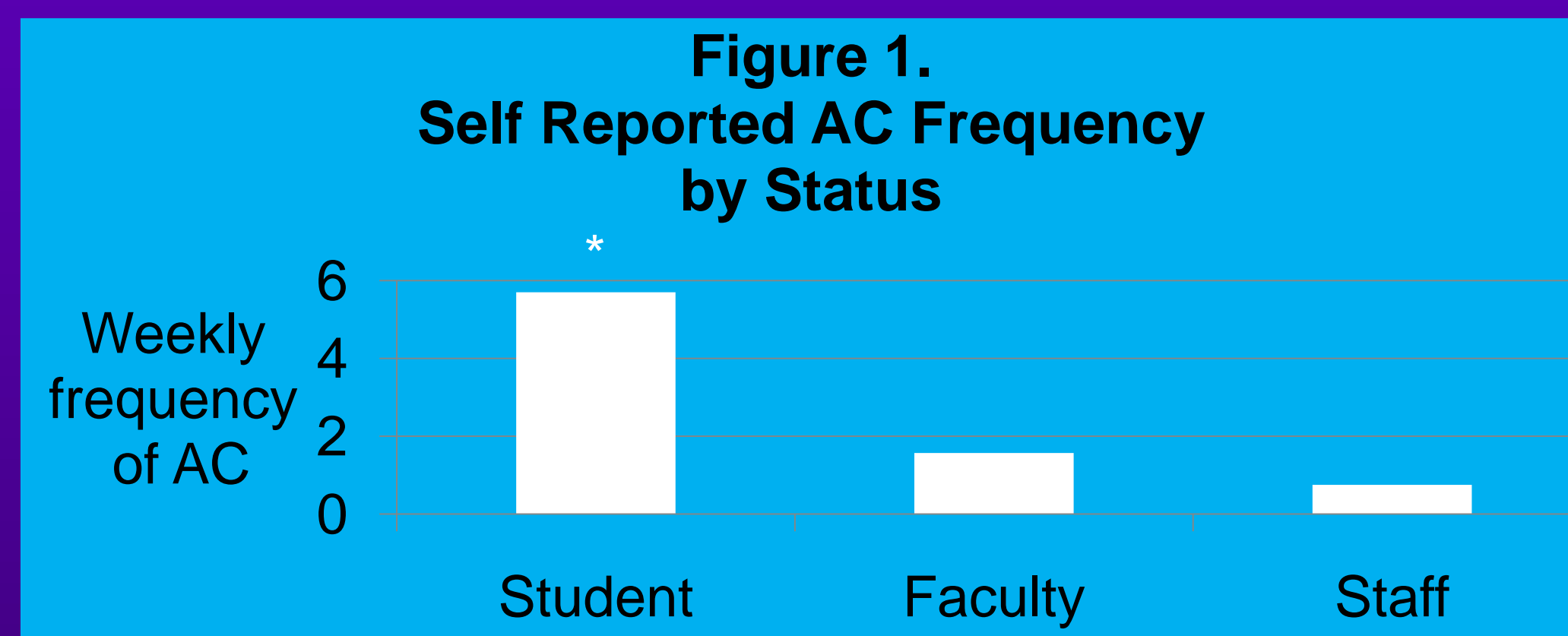
- 45% male, 55% female
- 46% were students, 32% faculty, 22% staff

Commuting Patterns:

- On average, respondents said they:
 - Drive to campus 3.3(±2.7) times per week
 - Walk to campus 2.71(±3.95) times per week
 - Bike to campus 0.67(±1.90) time per week
- Men and women reported equal AC behavior.
- Most individuals report commuting with similar modes of transportation as previous years, with only 18.1% reporting that they drive less frequently to campus.

Status Comparisons:

- Faculty actively commutes more often than staff. Refer to Figure 1.
- Students actively commute more often than either faculty or staff.
- No differences in reported walk time to campus by status.
- Students report less time to bike to campus than faculty and staff.



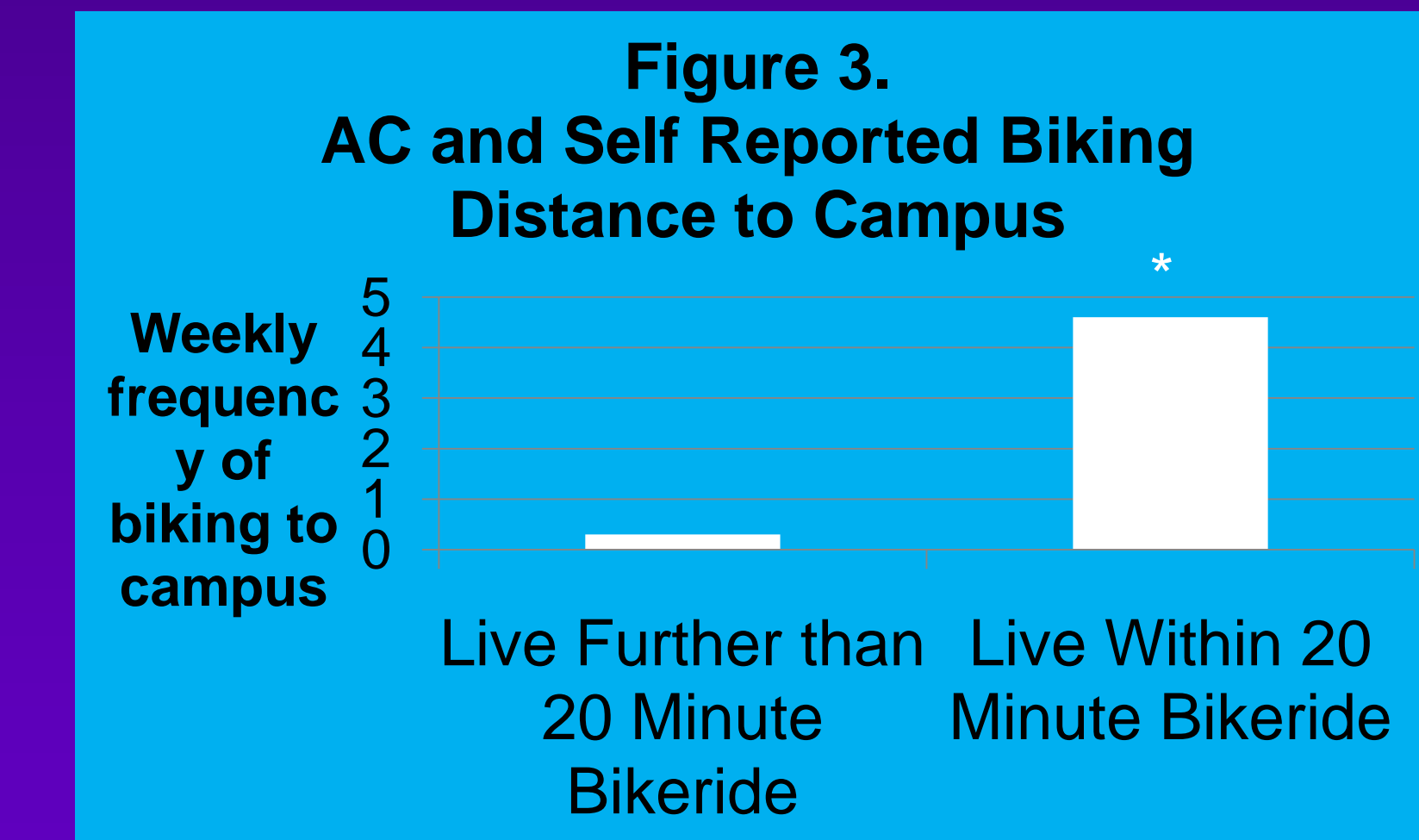
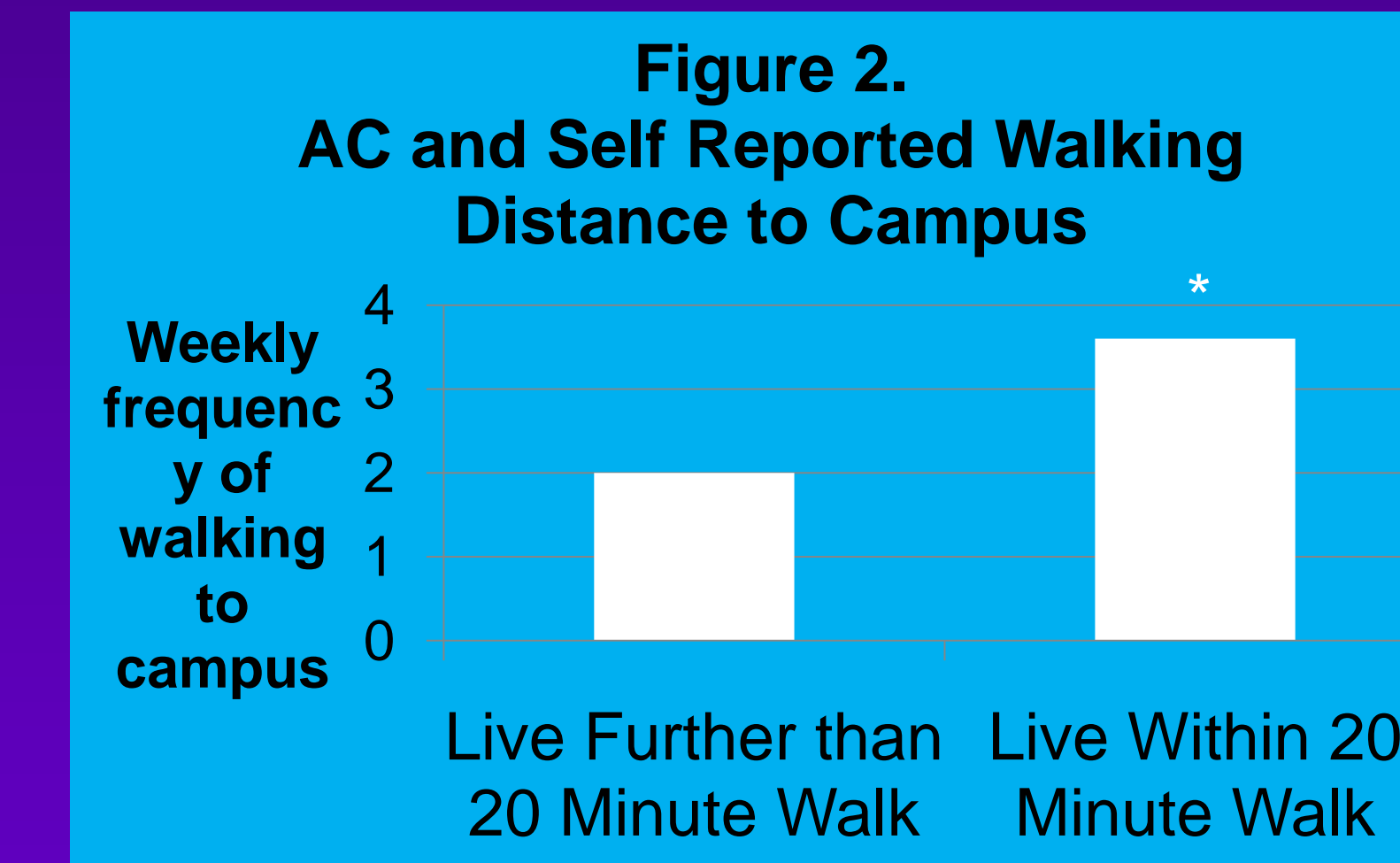
Note *p<0.05

Student Commuting Patterns:

- Undergraduate (5.69 [±4.7] times/week) and graduate students (6.1 [±0.96] times/week) actively commute at the same rate
- Most active commuting college was Architecture (7 times/week).
- Least active commuting colleges were Agriculture and Vet Med (2 times/week).
- 15% of students report that all trips to campus are by walking.
- 5% of students report that all trips to campus are by bicycle.

Relation between AC and distance:

- 46% of respondents reported living within a 20 minute walk from campus.
- 69% of respondents reported living within a 20 minute bike ride from campus.
- Individuals who self reported a shorter distance to campus were more likely to actively commute. Refer to Figures 2 & 3



Most Influential Reasons For Mode of Commute

1	Time Constraints (37.1%)	6	Parking cost (17.9%)
2	Weather (31.5%)	7	Environmental concerns (15.8%)
3	Traveling to other points before or after school (29.2%)	8	Economic concerns (13.6%)
4	Health Benefits (22.9%)	9	Availability of sidewalks (13.0%)
5	Parking availability (20.5%)	10	Safety concerns from traffic (12.7%)

Implications

- With increasing importance of environmental and economic concerns, biking and walking should be considered viable transportation options amongst university faculty, staff, and students.
- Results suggest that distance from home to travel destination is an important predictor of active commuting. Education is needed about sustainable community design that promotes active living.
- To combat barriers to biking, KSU could make environmental improvements such as additional bicycle parking, racks and trails/lanes, facilities for showering and changing clothes, and adding amenities such as air pumps and covered bicycle parking.
- Programmatic changes could include initiatives to improve biking safety and share the road signs.
- Policy changes such as increased parking permit prices could be disincentives to driving to campus, encouraging other forms of commuting.

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