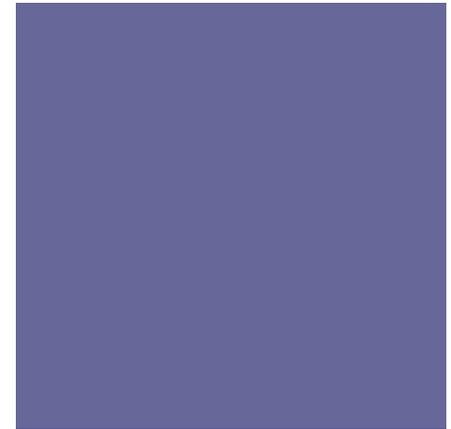




Building Healthy Communities Grant Training



Kellogg Center, East Lansing
March 12-13, 2009





SOPARC TRAINING: Objective Assessment of Parks and Trails

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+ Why Evaluate Parks and Trails?

- Mostly Free and Egalitarian
- Distribute Resources Equitably
- Who, When, Where
- Contextual Elements Impacting Use
- Open Environment
- Was the Intervention Effective?
- NEED OBJECTIVE DATA TO SUGGEST CHANGES

+ Built Environment and Physical Activity

- How Land Use and Transportation Systems Impact Public Health: *A Literature Review of the Relationship Between Physical Activity and Built Form* (access at [CDC.gov](https://www.cdc.gov/parks/): search parks ad trails)
 - There are two sets of variables believed to negatively influence the decision to walk or bike: personal barriers and environmental barriers.
 - Personal barriers are subjective considerations that operate on an individual level.
 - Whereas environmental barriers are objective considerations that hinder the individual's ability to act.
 - In surveys of why people do not walk or bike more frequently, both sets of barriers show up in the results.

+ Examples of Personal and Environmental Barriers to Physical Activity in the Built Environment

Personal Barriers	Environmental Barriers
<ul style="list-style-type: none">■ Lack of Motivation■ Perceived Lack of Time■ Weather (both)■ Family Obligations■ Fatigue	<ul style="list-style-type: none">■ Lack of Exercise Facilities■ Lack of Sidewalks, Bike Lanes on Roads, Nearby Public Parks or Hiking/Biking Trails■ Topography■ Perceived Low Levels of Safety of One's Neighborhood



Does the Built Environment Influence Physical Activity? Examining the Evidence -- Special Report

- TRANSPORTATION RESEARCH BOARD
INSTITUTE OF MEDICINE *OF THE NATIONAL ACADEMIES (2005)*
- Association between the built environment and physical activity.
- Built environments that facilitate more active lifestyles and reduce barriers to physical activity are desirable.
- Continuing modifications to the built environment provide opportunities, over time, to institute policies and practices that support the provision of more activity-conducive environments.

+ What Else Research is Telling Us About Trails

- Recreational trails have been identified as an environmental support for activity (Reed & Wilson, 2006; Reed, Ainsworth, Wilson, Mixon & Cooke, 2004; Saelens, Sallis, & Frank, 2003).
- Variables such as weather, automobile traffic, time of day, equipment, and facilities are environmental factors impacting activity (Addy, Wilson, Kirtland, Ainsworth, Sharpe, & Kimsey, 2004; Reed & Phillips, 2005; Reed & Wilson, 2006; Sallis & Owen, 1999).

+ What Else Research is Telling Us About Trails

- Previous research on trails has identified *perceptions of safety, location and quality of a trail as potential barriers to trail use.*
- Unfortunately, studying trail-user behaviors continues to be difficult due to the lack of objective measures in specific ecological contexts (McKenzie et al., 2006).

+ What Else is Research Telling Us Trails and Parks

- Reed and colleagues (2008) recently examined the activity behaviors in 25 parks and found that paved trails were the most frequently used activity setting.
 - Sixty-percent and 81 percent of male and female adults, respectively observed in all 25 parks were observed using paved trails.
 - Yet, paved trails were only in five of the 25 parks assessed, but were the most frequently used activity setting.
- Lack of objective measures of activity in specific ecological contexts (Use Direct Observation).

+ What Else is Research Telling Us About Trails and Parks

Reed, McKenzie and colleagues (2007) examined 3-mile trail in a park and found:

- Trail-users were more likely to be male.
- More walkers than vigorous activity.
- More Caucasians than minority trail-users.
- Monday was the most popular day to use trail.
- Ambient temperature increased, walkers decreased.
- Increase temperature did not impact vigorous activity.

Environmental interventions: more benches, more water fountains, more shaded areas to promote walking in higher temperatures.

+ More on Parks

- Parks have a variety of activity settings (e.g., tennis courts, trails, playgrounds, playing fields, etc.) yet we know little about specific features related to quantify activity in parks.
- *National Recreation and Park Association entitled: Step Up to Health-it Starts in the Parks.*

+ More on Parks

- The Trust for Public Land also recently disseminated a report entitled: *The Health Benefits of Parks* to illustrate the roles parks have in promoting regular activity.

+ More on Parks

- Most and least widely used activity settings within each park be objectively identified and catalogued (Reed, McKenzie et al., 2007; Reed et al., 2008; Cohen, McKenzie et al., 2007).
- This type of contextual information will enable park and recreation officials to identify the type of activity (e.g., sedentary, moderate and/or vigorous intensity).

+ More on Parks

- *Self-report* most widely used.
- The vast majority of park-user data collected has focused on *characteristics describing little information about the activity patterns of adults who use community parks* (Sallis & Owen, 1999; Bedimo-Rung et al., 2005).

+ What is Direct Observation?

- Direct observation is a methodology to classify free living behaviors into distinct categories in order to be analyzed (McKenzie, 2002).
- Direct observation of human behavior in both natural and built environments has been used as an objective methodology to study human behavior for over a century.
- It has been frequently overlooked by researchers in the disciplines of exercise science and activity (Montoye et al., 1996).



DO and Surveys

- Objective methodologies in concert with survey methods should be utilized.
- Surveys are limited to respondents' perceptions and do not provide contextual information (e.g., trail terrain, air temperature, time of day of trail use, etc.) that could be related to activity behavior.



The System for Observing Play and Recreation in Communities (SOPARC)^a

- Based on momentary time-sampling
- Separate scans are made for females and males, and for estimating the age and ethnic groupings of participants.
- Summary counts describe the number of participants by gender, activity modes and levels, and estimated age and gender groupings.
- Proven valid and reliable for gathering data on:
 - user demographics (e.g., age, sex, race)
 - environmental features (e.g., temperature, weather, equipment)
 - user features (e.g., type of activity)
 - physical activity level (e.g., sedentary, walking, very active)

^aMcKenzie et al. System for observing play and recreation in communities (SOPARC): reliability and feasibility measures. *Journal of Physical Activity and Health*. 2006;3:S208-S222.

+ Rationale for SOPARC

- Activity and recreation are positively associated with good health.
- Investigations of activity participants in “open” environments have been hampered by the lack of an objective tool.

+ Observer Preparation

- Prior to leaving for the park/trail, prepare observation materials including: synchronized wristwatch, counter, clipboard, sufficient SOPARC recording forms, and pencils.
- Arrive at the park/trail site at least 20 minutes prior to the official start of coding.
- Review the sequence for observing Target Areas. Visit each Target Area in order and plan how to sub-divide it into Scan Spaces if necessary.

+ Observation Areas

- Direct observations are made in designated **Target Areas** that represent all standard locations likely to provide opportunities for park users to be physically active.
- During occasions of high user density, Target Areas are subdivided into smaller **Subtarget Areas** (scan spaces) so that accurate measures can be obtained.

+ SOPARC Codes and Recordings

- **Accessible** = Code “YES” if area is accessible to the public (e.g., area is not locked or rented to a private party).
- **Usable** = Code “YES” if area is usable for physical activity (e.g., is not excessively wet or roped off for repair).
- **Equipped** = Code “YES” if equipment (e.g., balls, jump ropes) provided by the park is present during the scan. Code “NO” if the only equipment available is permanent (e.g., basketball hoops and climbing apparatus) or owned by park users themselves (e.g., frisbee, ball, or bicycle brought by a family).

+ SOPARC Codes and Recordings

- **Supervised** = Code “YES” if area is supervised by designated park or adjunct personnel (e.g., park rangers, playground supervisors, volunteers, sport officials, teachers).
- The supervisor must be in or adjacent to that specific area (e.g., available to direct park users and respond to emergencies), but does not have to be instructing, officiating, or organizing activities.



SOPARC Codes and Recordings

- **Activity Organized** = Code “YES” if an organized physical activity is occurring in the scan area (e.g., a scheduled sporting event or exercise class is being lead by park staff or adjunct personnel).
- **Dark** = Code “YES” to indicate the area has insufficient lighting to permit active play. Observers should not enter a target area unless there is sufficient lighting.
- **Empty** = Code “YES” when there are no individuals present during the scan. Also, code “YES” when the area is dark.
- **Comments** Enter relevant additional information about the condition, people, or activities within the Target Area.
- **Activity** Write in the most prominent (primary) physical activity that females and males are doing in the area. If applicable, write in the second most prominent physical activity (secondary) that females and males are doing.

+ Recording Procedures

- Observations made 4x/day (7:30am, 12:30pm, 3:30pm, 6:00/30pm) for 7 consecutive days.
- Scan each Target Area from L to R
- Age-range
- Too many people in one Target-Subtarget (When people move to a different Subtarget Area while you are scanning, count only those who are present at the time you are scanning).

+ Recording Procedures

- Determine if there are **Females** within the target area.
- For **Females**, decide which is the main activity in the target area and record it under **Primary Activity**.
- Now scan all participating females in the primary activity and record their activity level (sedentary, walking, or vigorous).
- Scan the entire target area again for **Females** who are **Spectators**.

+ Recording Procedures

- Describe the activity they are watching and scan for age, ethnicity, and activity level.
- If there are no female spectators, write “none” under organized activity and move to action.
- Repeat actions for **Males**, scanning first for participants in the primary activity, then secondary activity, and finally spectators.

DATE _____ PARK NAME _____ OBSERVER _____ PERIOD: AM LUNCH AFTERNOON EVENING
 TARGET AREA _____ START TIME _____
 Target Area # _____ Subtarget Area # of Total Subtarget areas _____

CONDITIONS OF TARGET AREA

Accessible (e.g., not locked or rented to others) Yes No
Usable (e.g., is not excessively wet or windy) Yes No
Equipped (e.g., removable balls available) Yes No
Supervised (i.e., by official personnel) Yes No
Organized (e.g., team sporting event) Yes No

Dark (e.g., insufficiently lit) Yes No
Empty (i.e., area not occupied) Yes No

Comments:

PEOPLE	ACTIVITY	AGE GROUP				ETHNICITY				ACTIVITY LEVEL		
		Child	Teen	Adult	Senior	L	B	W	O	S	W	V
Participants	Primary Activity											
Female												
Male												
Participants	Secondary Activity											
Female												
Male												
Spectators	Organized Activity											
Female												
Male												

This is a reliability check

Fitness Related Codes:

aerobics (dance/step aerobics)
 fitness stations
 jogging/running
 strengthening exercises (pull ups)
 walking

Sport Related Codes:

baseball handball
 basketball horseshoes
 cheer leading soccer
 dance tennis/racquet
 football tetherball
 gymnastics volleyball

Active Game Related Codes:

climbing/sliding
 jumping (rope, hop scotch)
 manipulatives/racquet
 tag/chasing games
 active play

Sedentary Related Codes:

chess/checkers/cards
 lying down
 picnic (food involved)
 reading
 standing
 sitting

+ Procedures for Trails/Path

- The Target Area will be observed for this length of each time a scan of the area is conducted.
- A standard location from which all scans will be made will be identified if only one access point to trail.
- This location is referred to as the ***Coding Station*** and will easily identifiable.
- On the SOPARC Observation Form, enter the **Date, Park ID, Observer ID, Period, and Target Area.**
- If possible, complete this section prior to the start of the observation period.
- Enter the **Start Time** and **End Time** on the Path Coding Form.

+ Calculating Energy Expenditures

- To estimate kilocalories/kg expended, the number of people counted in the sedentary, walking, and very active categories are multiplied by the constants:
 - .051kcal/kg/min,
 - .096kcal/kg/min, and
 - .144kcal/kg/min, respectively.
- Kilocalories/kg from each category can be summed to provide a measure of the total kilocalories/kg expended by park and trail users in a given area.
- These values can be interpreted as the number of kilocalories per kg of body weight per minute expended in each area during the observed day.
- These energy expenditure rates are dependent on the number of people observed.



■ Picture TEST

+ Let's Go OUTSIDE!!!!









+ Research Example for Trail: Direct Observation Results

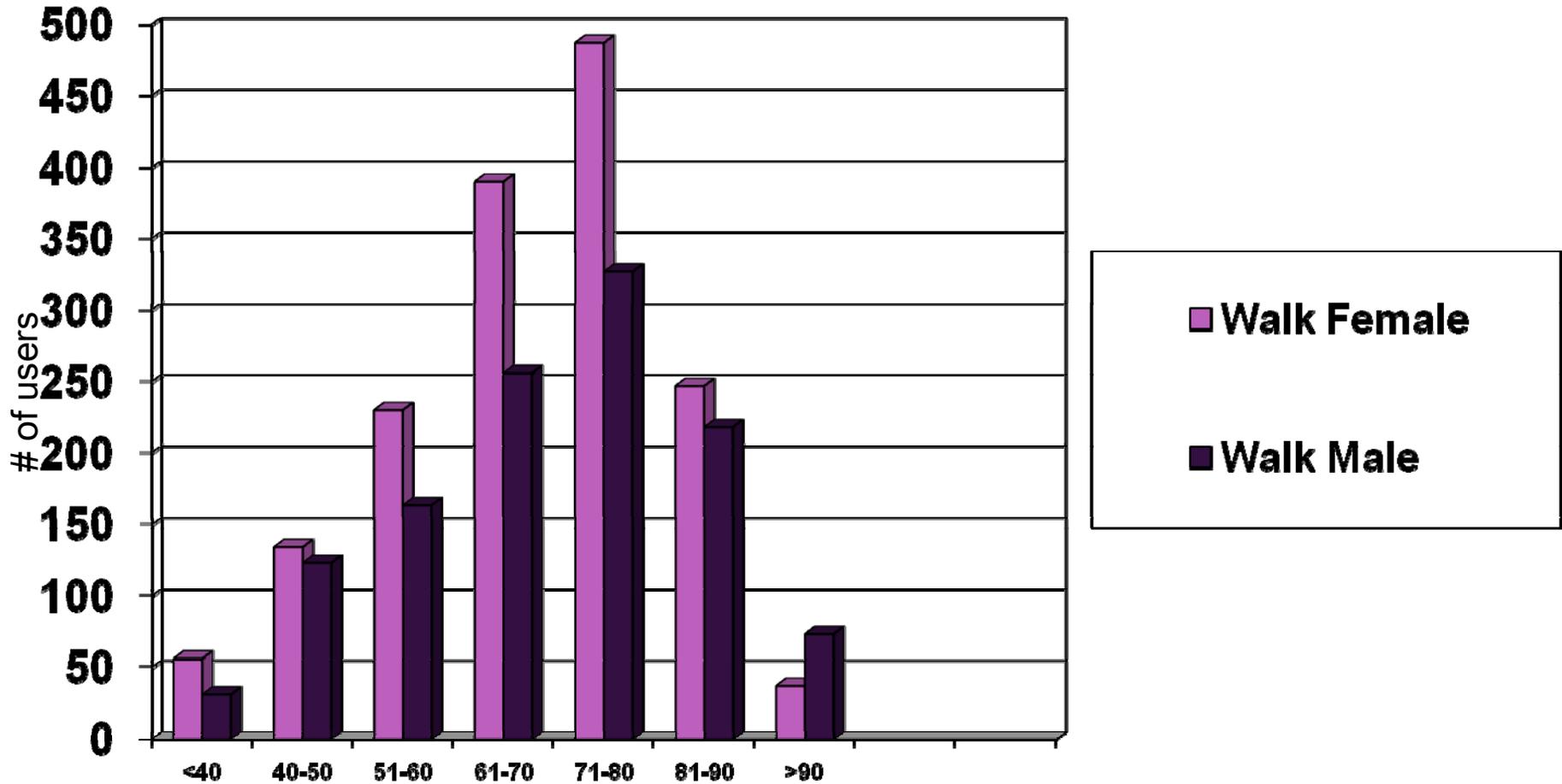
During the first 4 years following construction of the rail-trail segment (May 2005–December 2008):

- 4,778 users were observed:
 - 59% walking, 37% very active, 4% sedentary
 - vast majority (70%) were adults
- Age distribution coincided with adjacent census tracts*
 - 54% male, 46% female
 - 43% male, 57% female in adjacent census tracts*
 - 71% white, 29% non-white
 - 62% white, 38% non-white in adjacent census tracts*

+ Research Example for Trail: Direct Observation Results

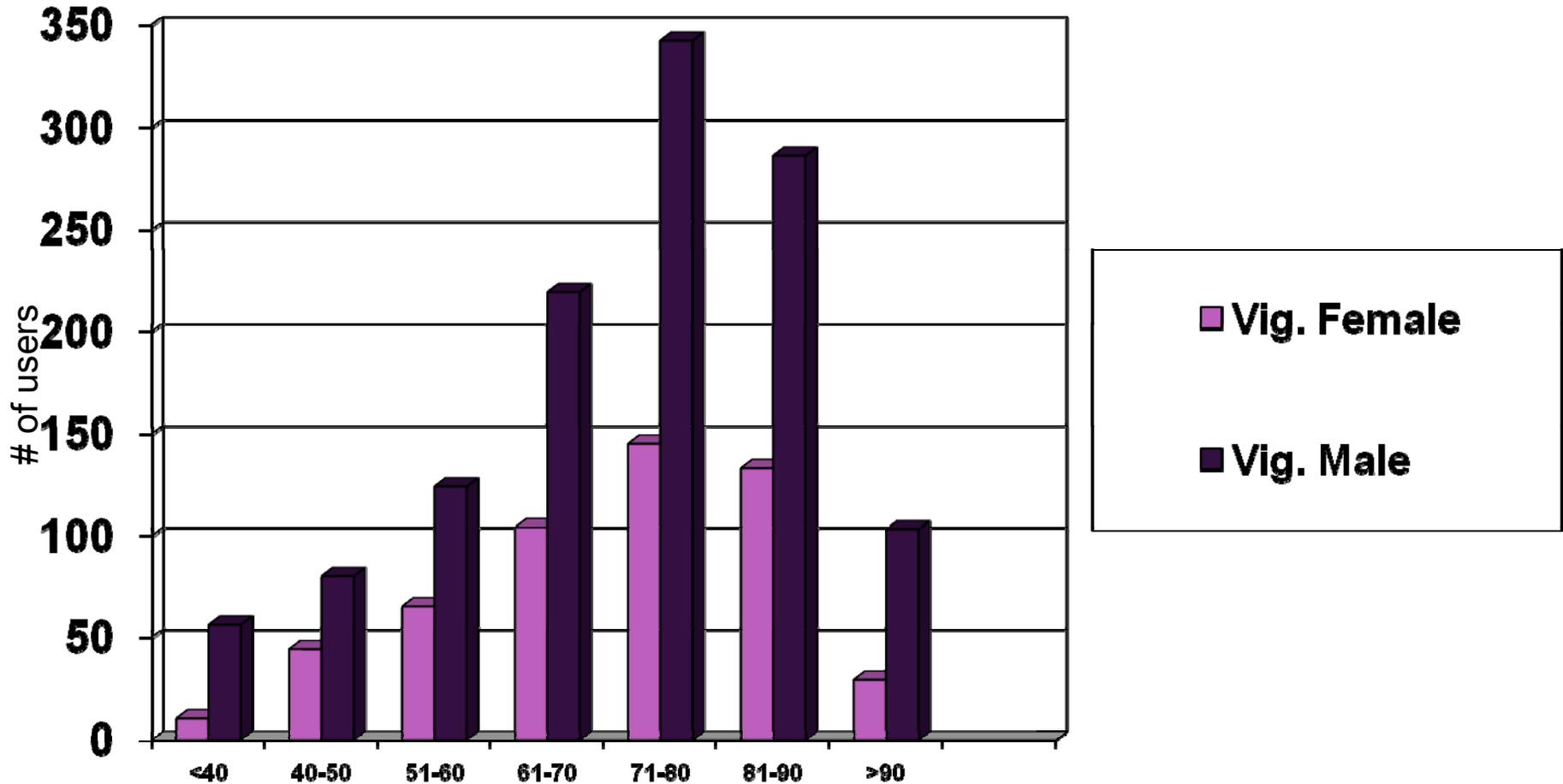
- More males were observed during summer, fall and winter; more women observed during the spring.
- More males were observed in very active activity
 - 49% of males vs. 24% of females did vigorous intensity PA
 - 72% of females vs. 48% of males were observed walking
- Air temperature related to number of users
 - More people (29%) observed when the temperature was between 71-80° F
 - Over 53% of users observed when the temperature was between 71-90° F

Walking Observations by Temperature

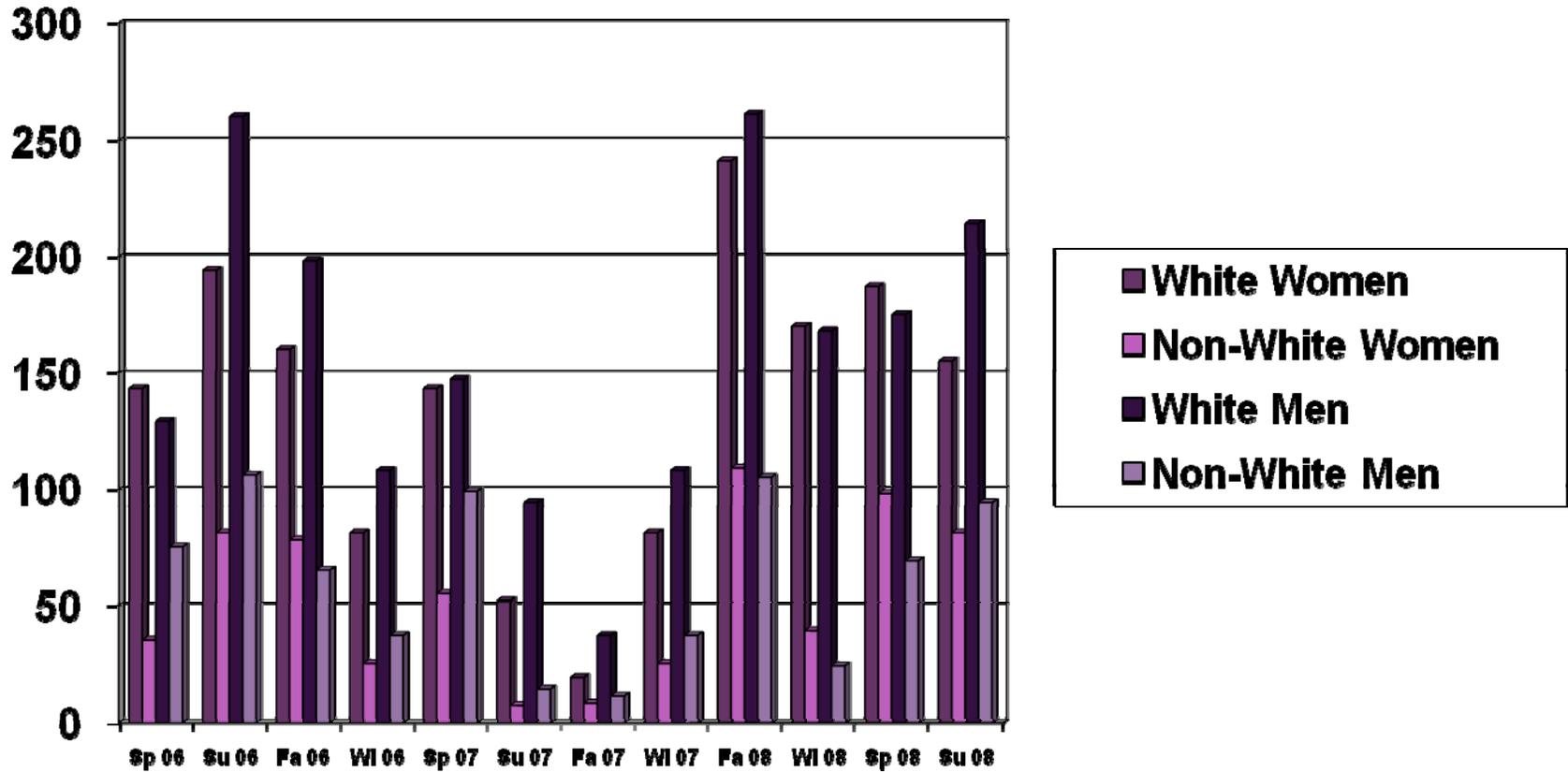


Temperature changes significantly impacted trail use

Vigorous Observations by Temperature

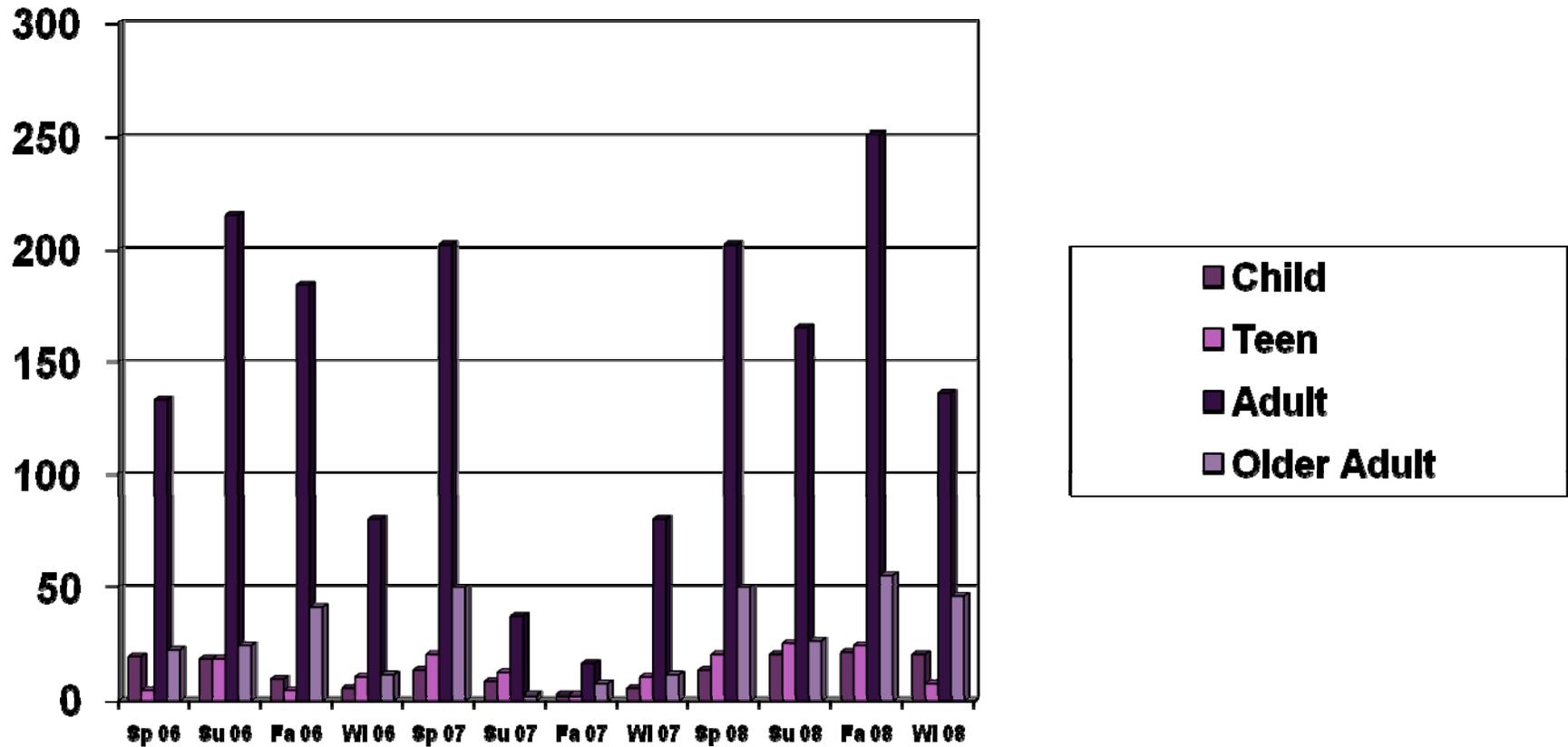


Gender and Race Characteristics of Users Across Quarterly Observation Periods

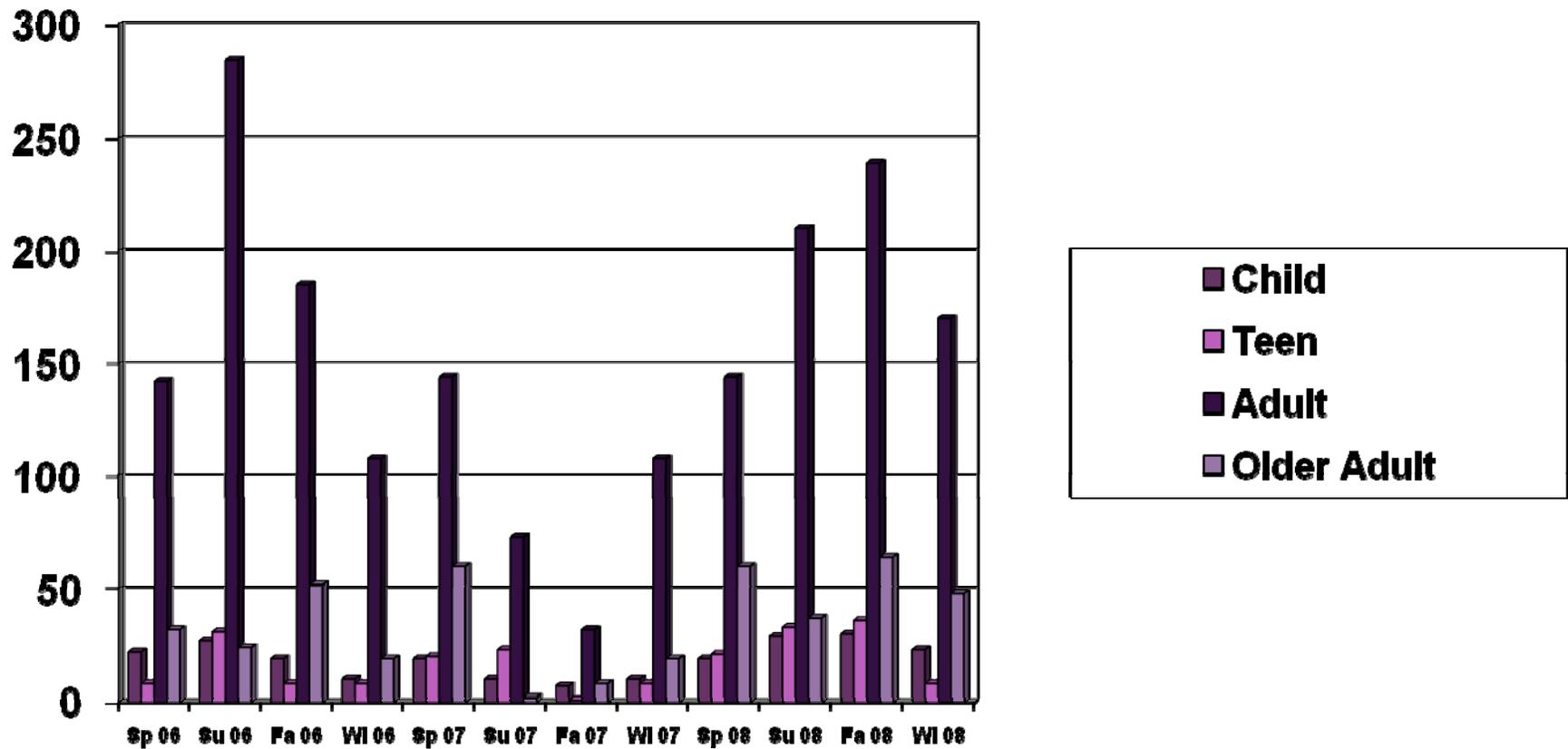


All Seasons, White > Non-White for both genders

Age Characteristics of Female Users Across Quarterly Observation Periods



Age Characteristics of Male Users Across Quarterly Observation Periods



+

Combine SOPARC with Intercept Survey

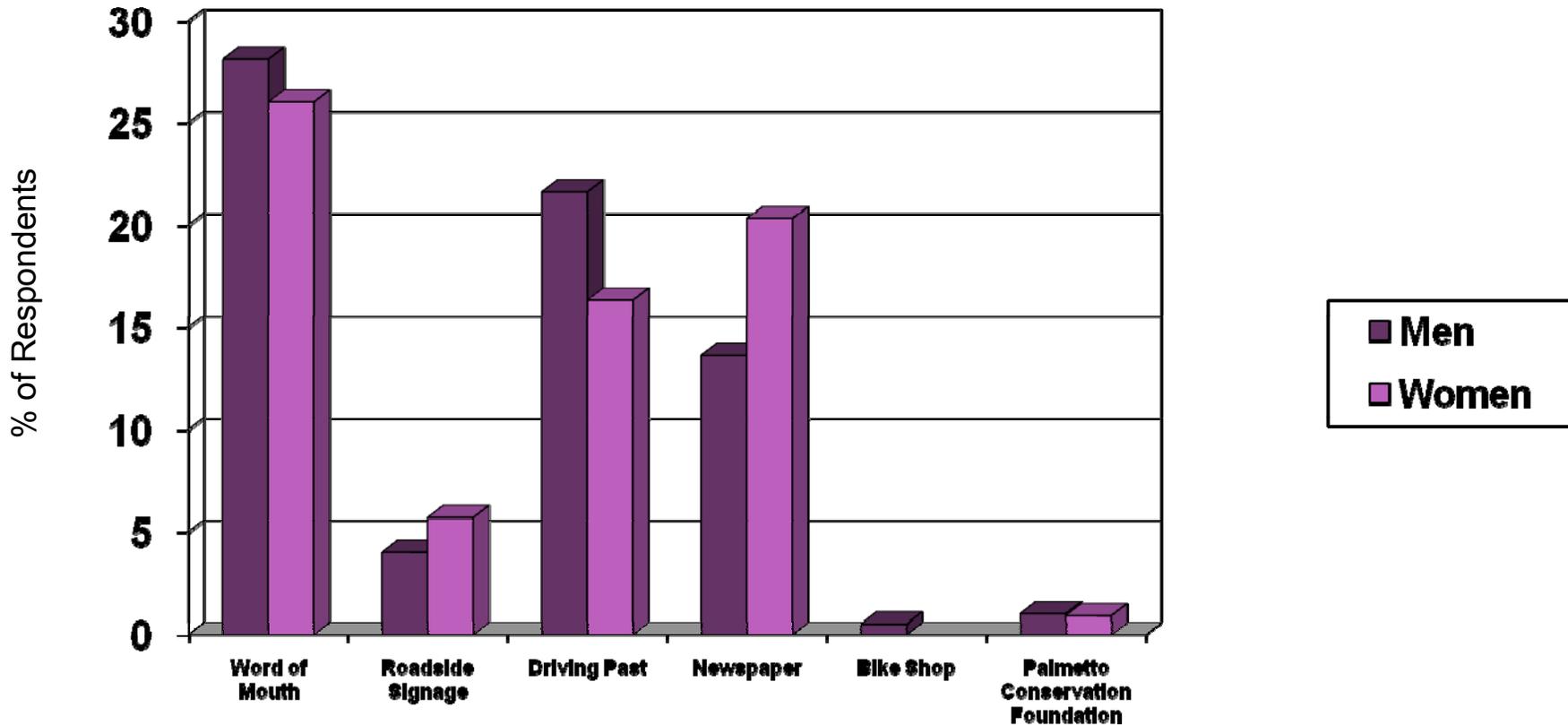
+ Intercept Survey Protocol

- Subset (~10%) of users asked by trained students if they would be willing to participate in a brief (5-10 minute) survey about the rail-trail segment
- Purpose of the survey and confidentiality explained, and verbal consent to proceed obtained
- Questions asked pertaining to:
 - Personal demographics (age, race, income, education)
 - Purpose, frequency, and duration of using the segment
 - Time and means of travel to access the segment
 - How the user became aware of the segment
 - Perceptions of maintenance, aesthetics, and safety
- One-page project description with the PI and USC Human Subjects Research Compliance Office contact information offered

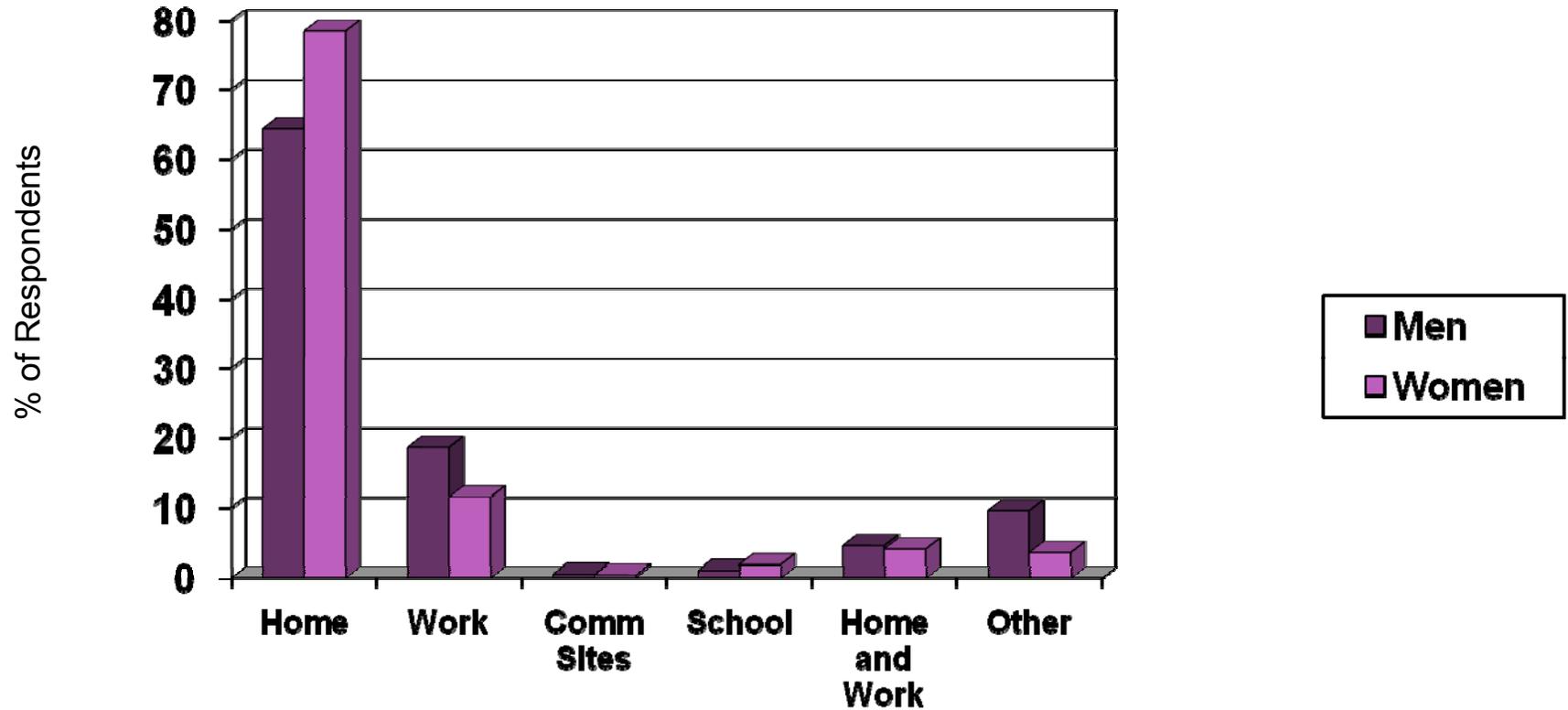
+ Results of Intercept Survey (N = 430)

- Average Age:
 - Males: 50 years, $\sigma = 15.23$
 - Females: 49 years, $\sigma = 15.67$
- Proximity: Average 3 miles from trail.
- Race:
 - Males (N=198):
 - Non-white: 22.6%
 - White: 77.4%
 - Females (N=226):
 - Non-white: 27.8%
 - White: 72.2%

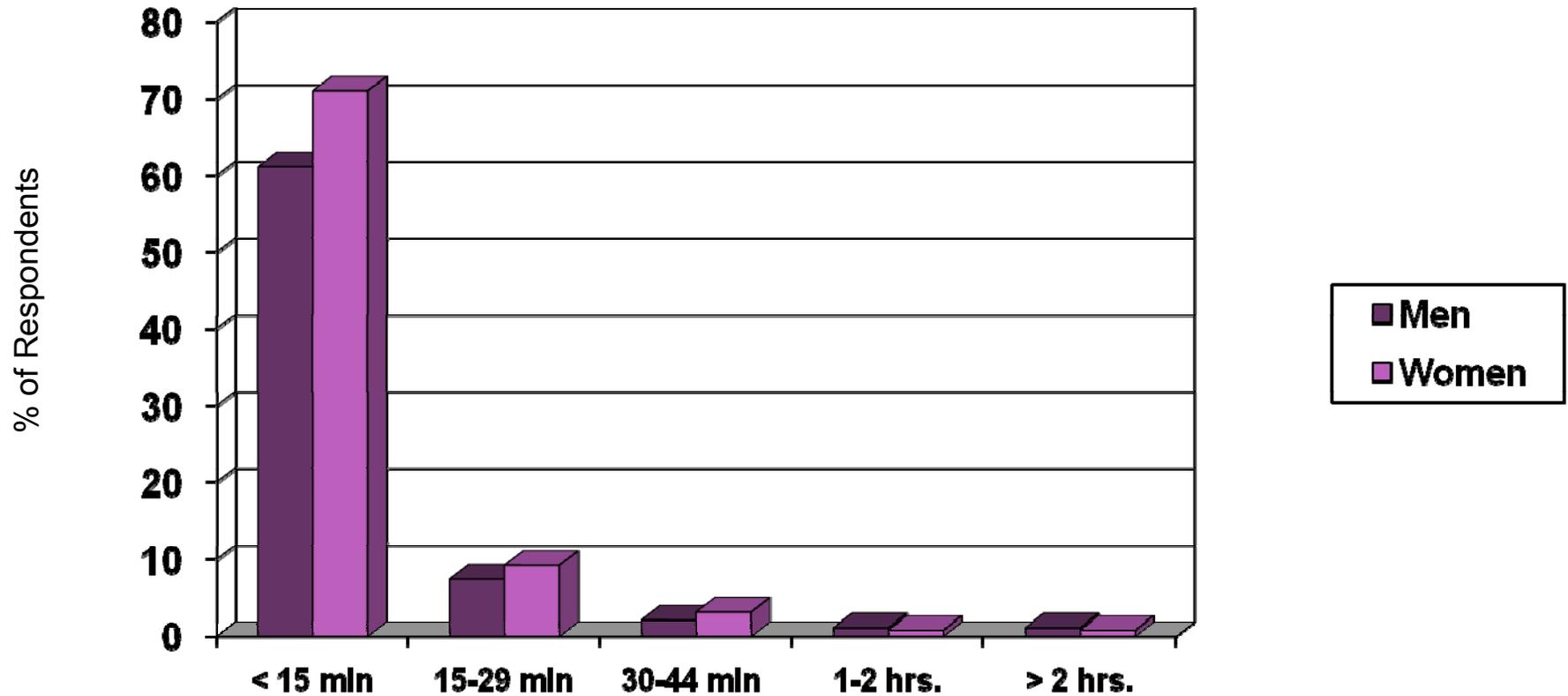
How Users Became Aware of the Rail-Trail Segment



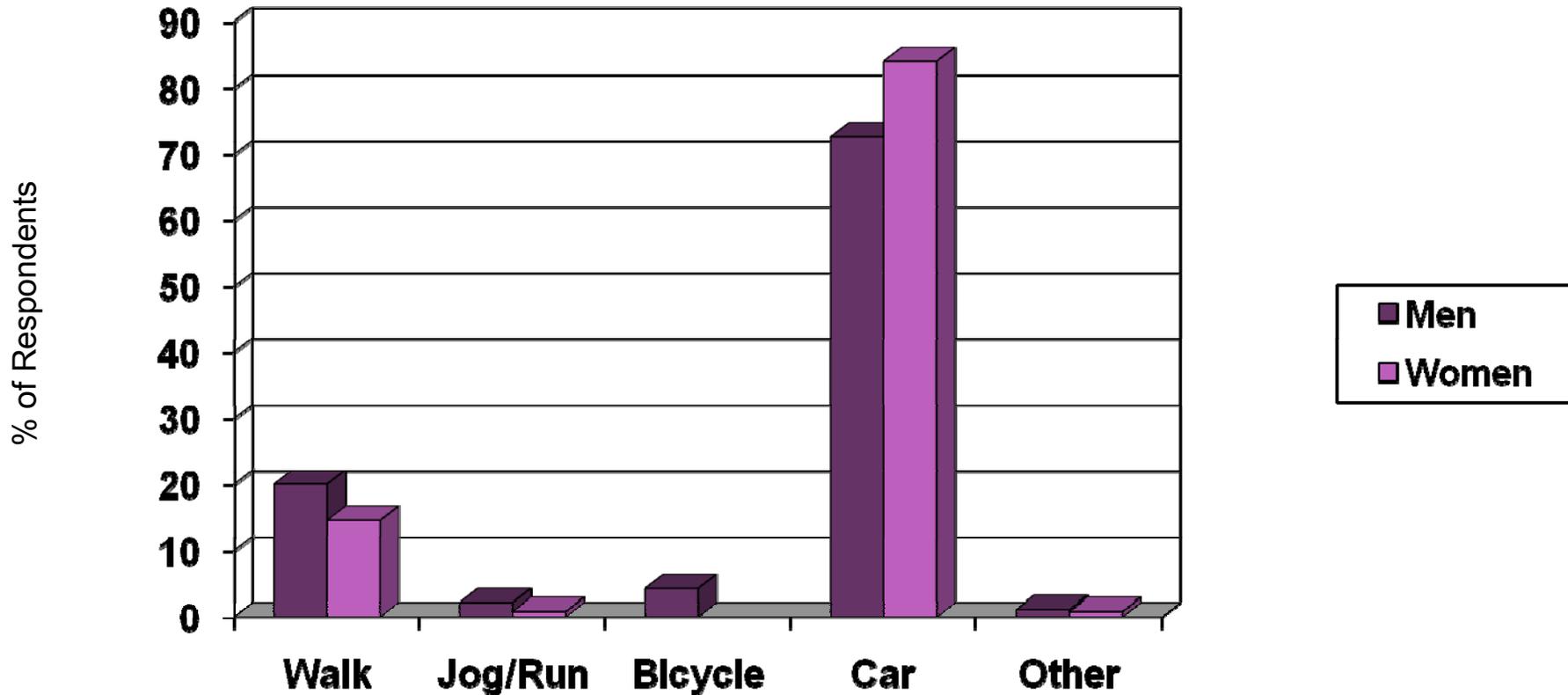
Where Users Come From



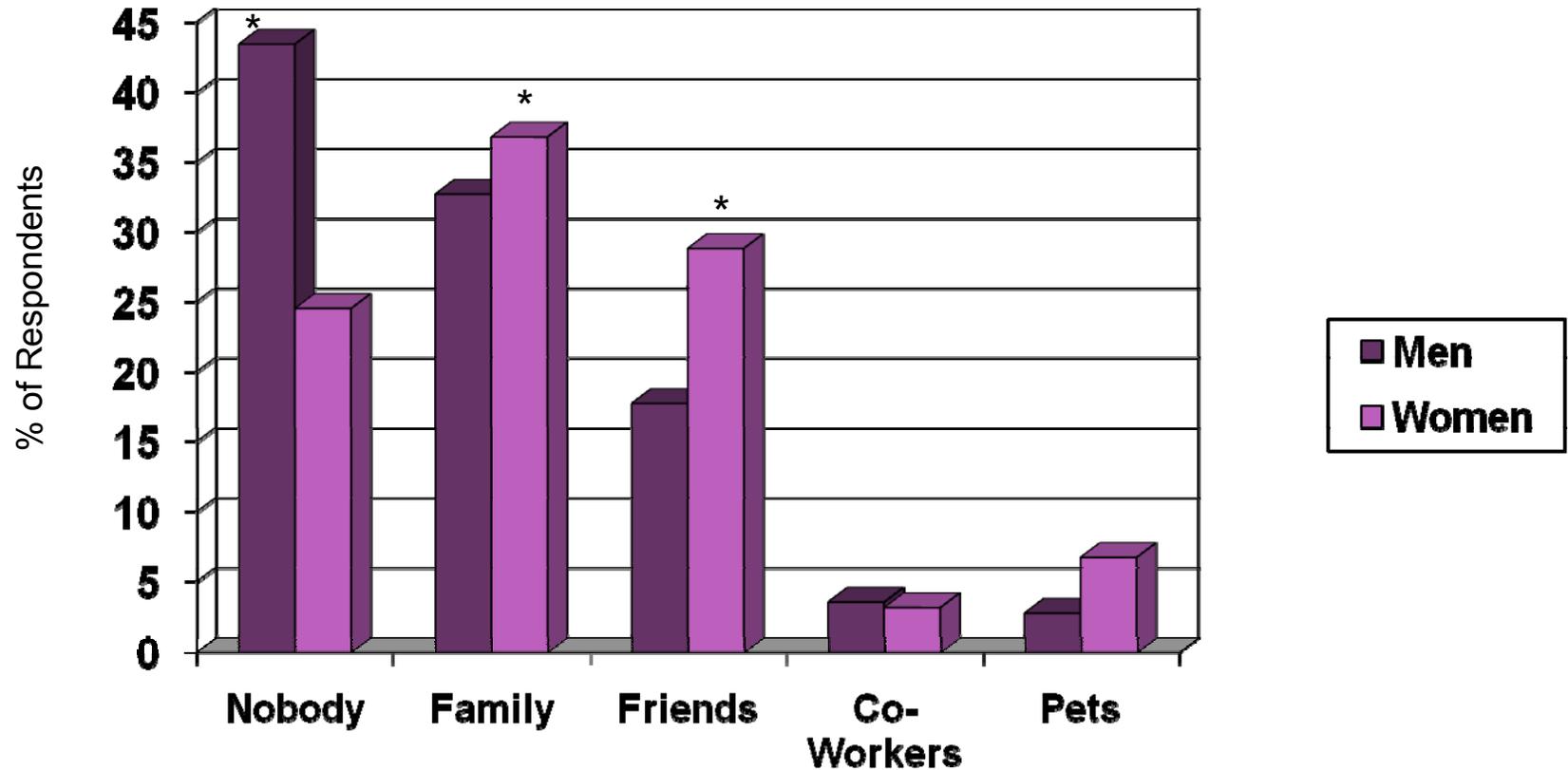
Time to Rail-Trail Segment from Home



How Users Get to the Rail-Trail Segment

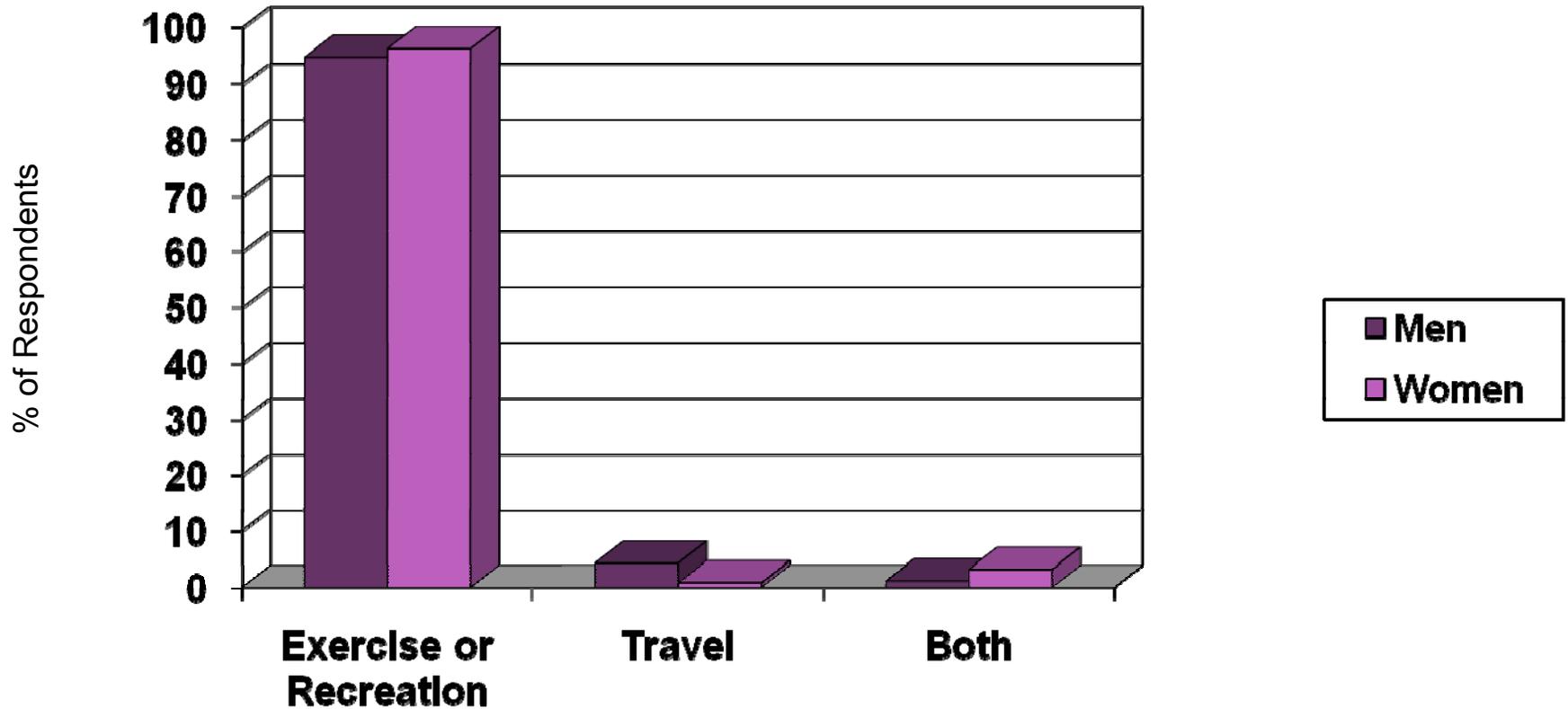


User is Usually Accompanied by

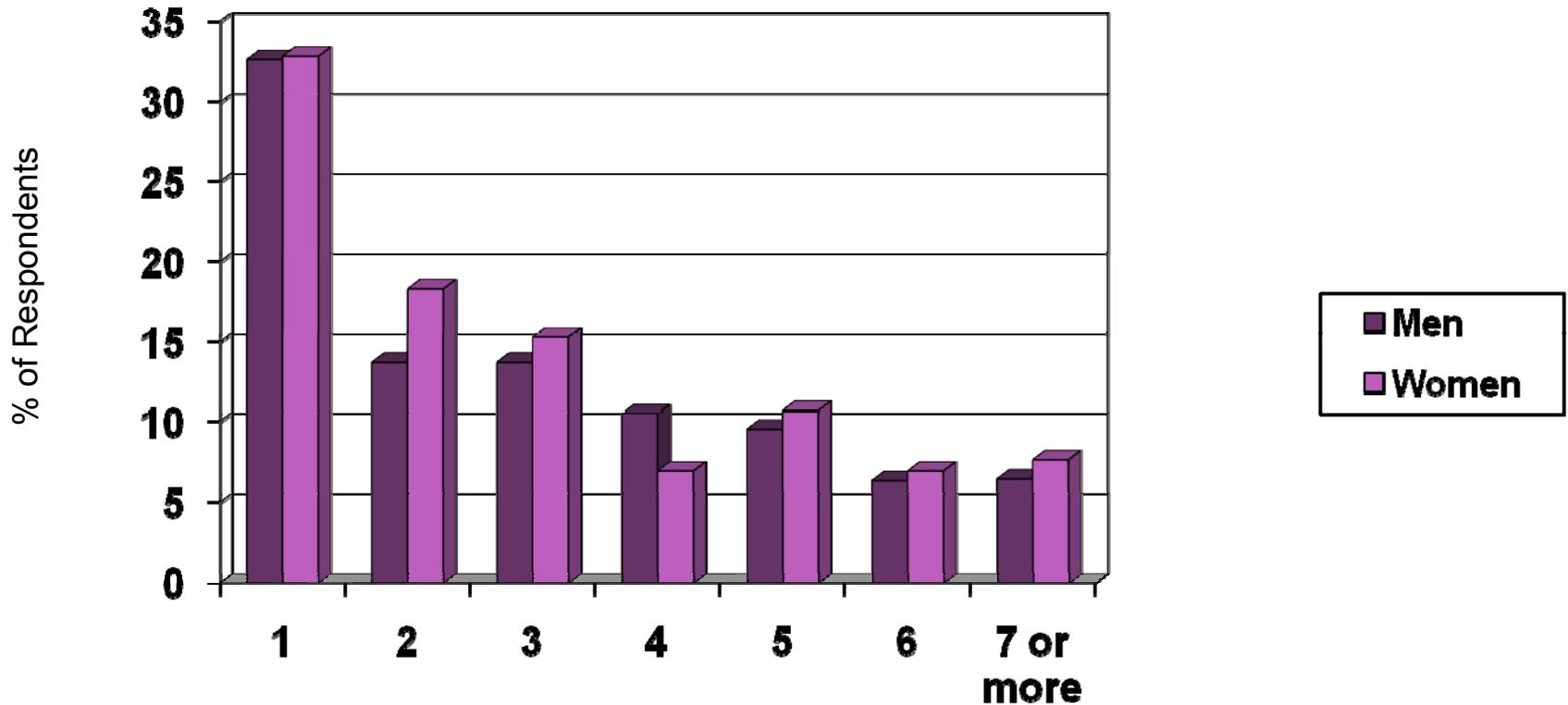


* Similar to direct observation data

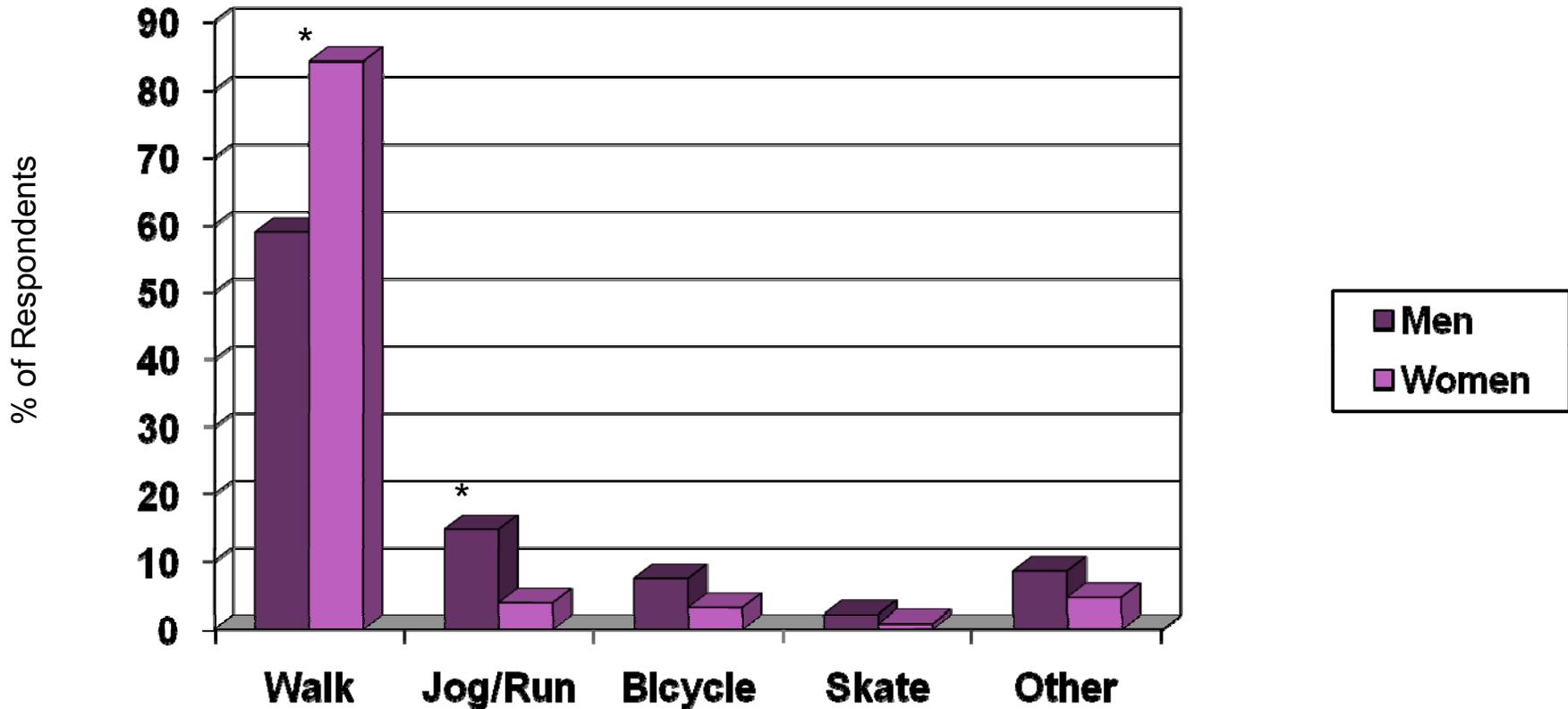
Reason for Using the Rail-Trail Segment



Frequency (times per week) of Rail-Trail Segment Use

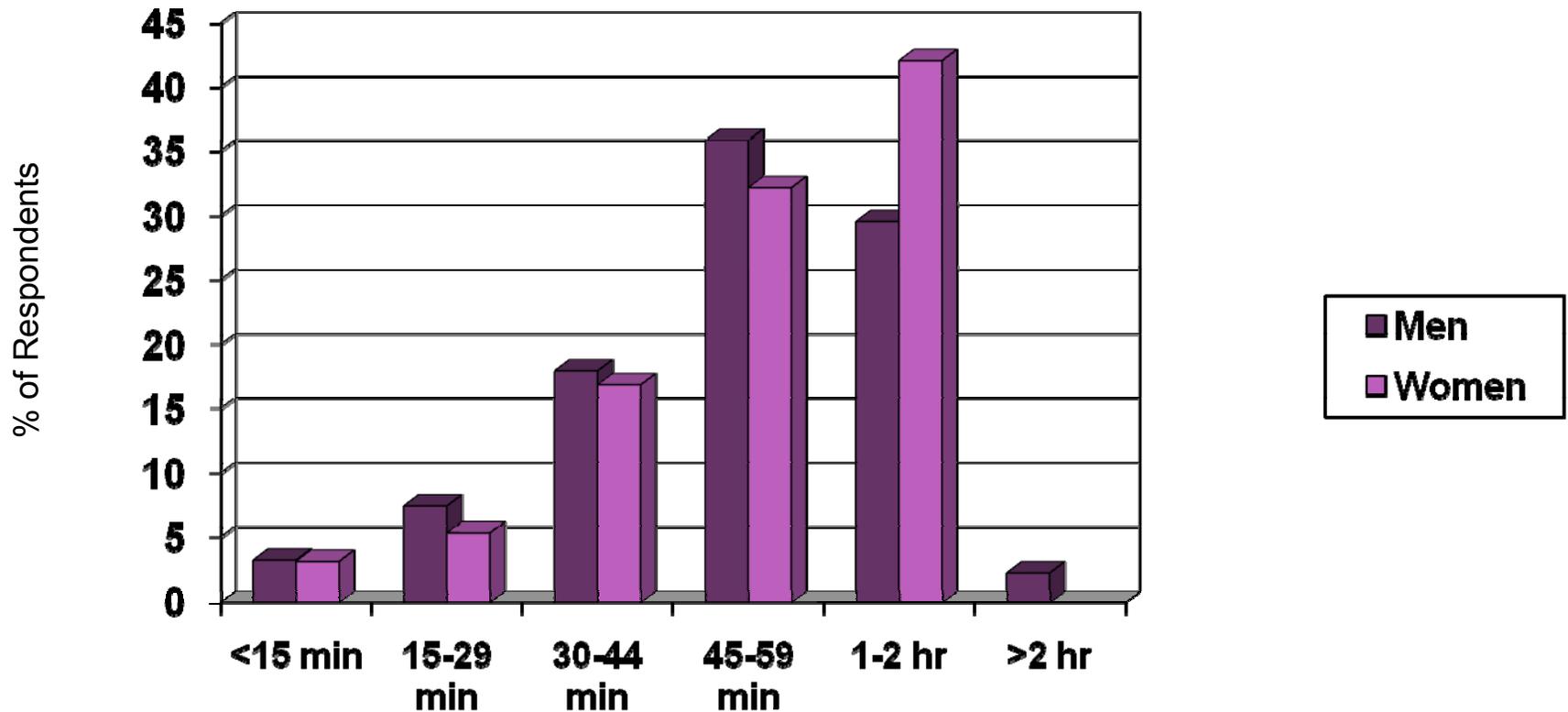


User Activity on the Rail-Trail Segment

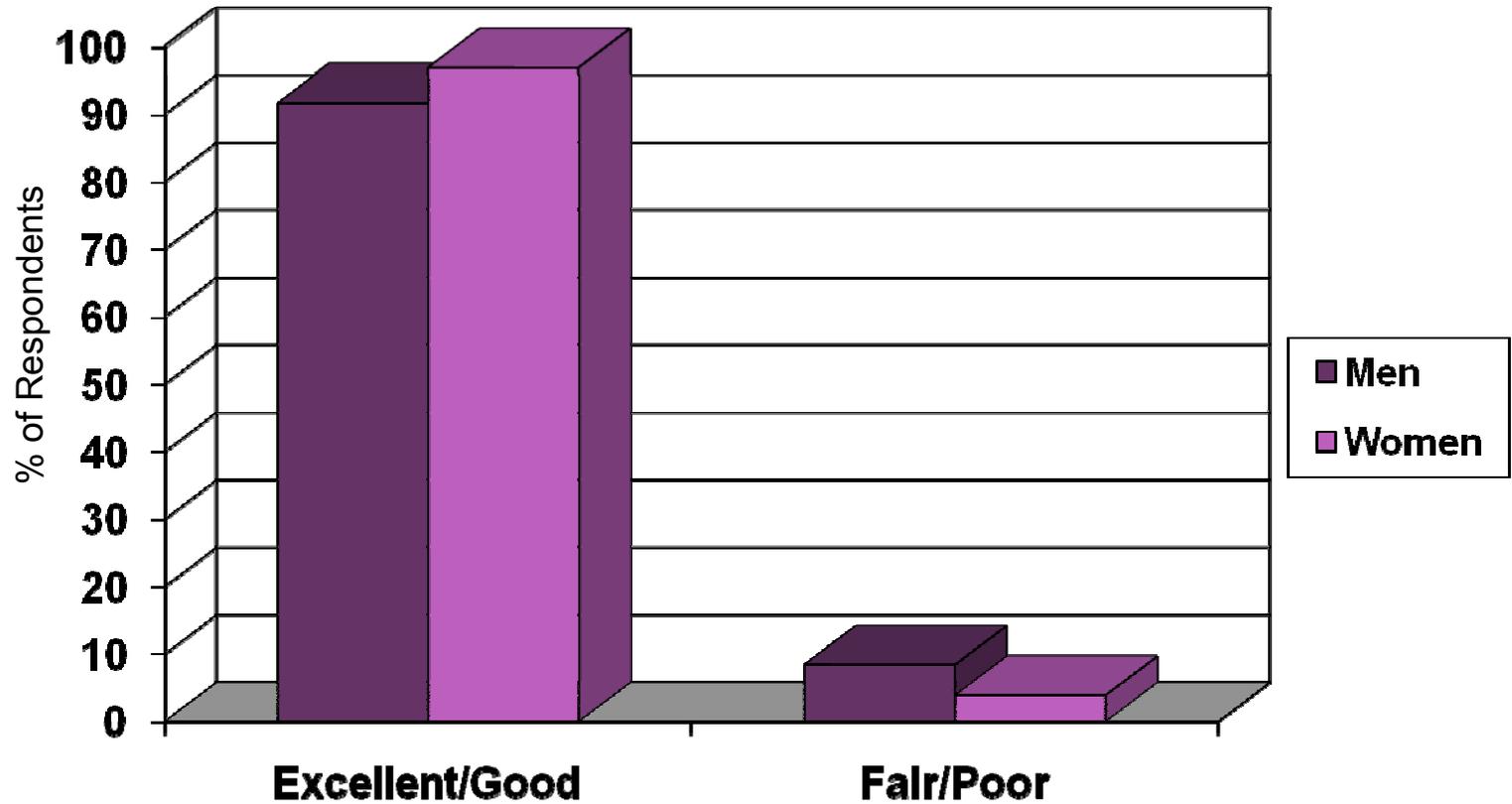


* Similar to direct observation data

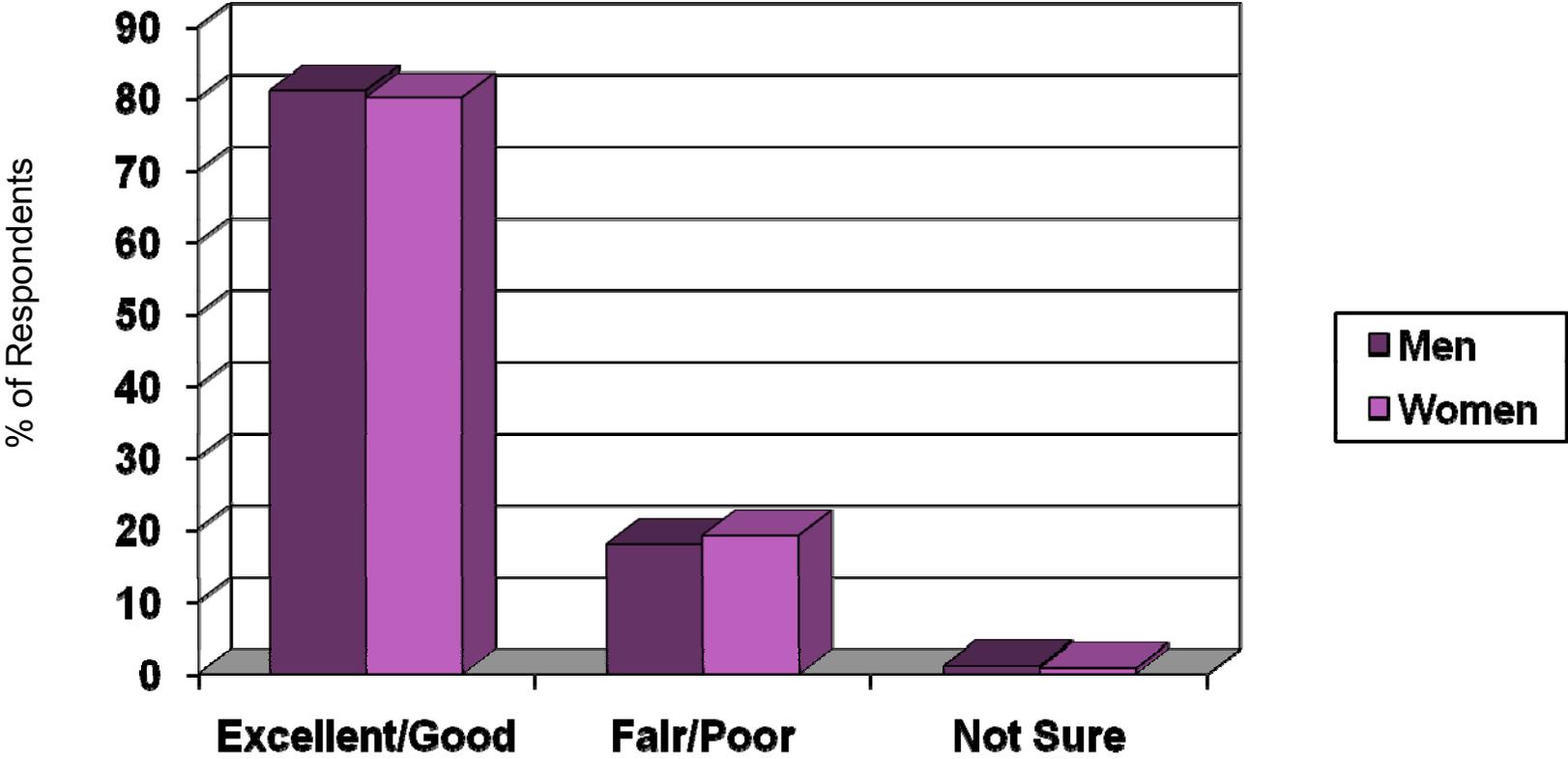
Time on the Rail-Trail Segment per Visit



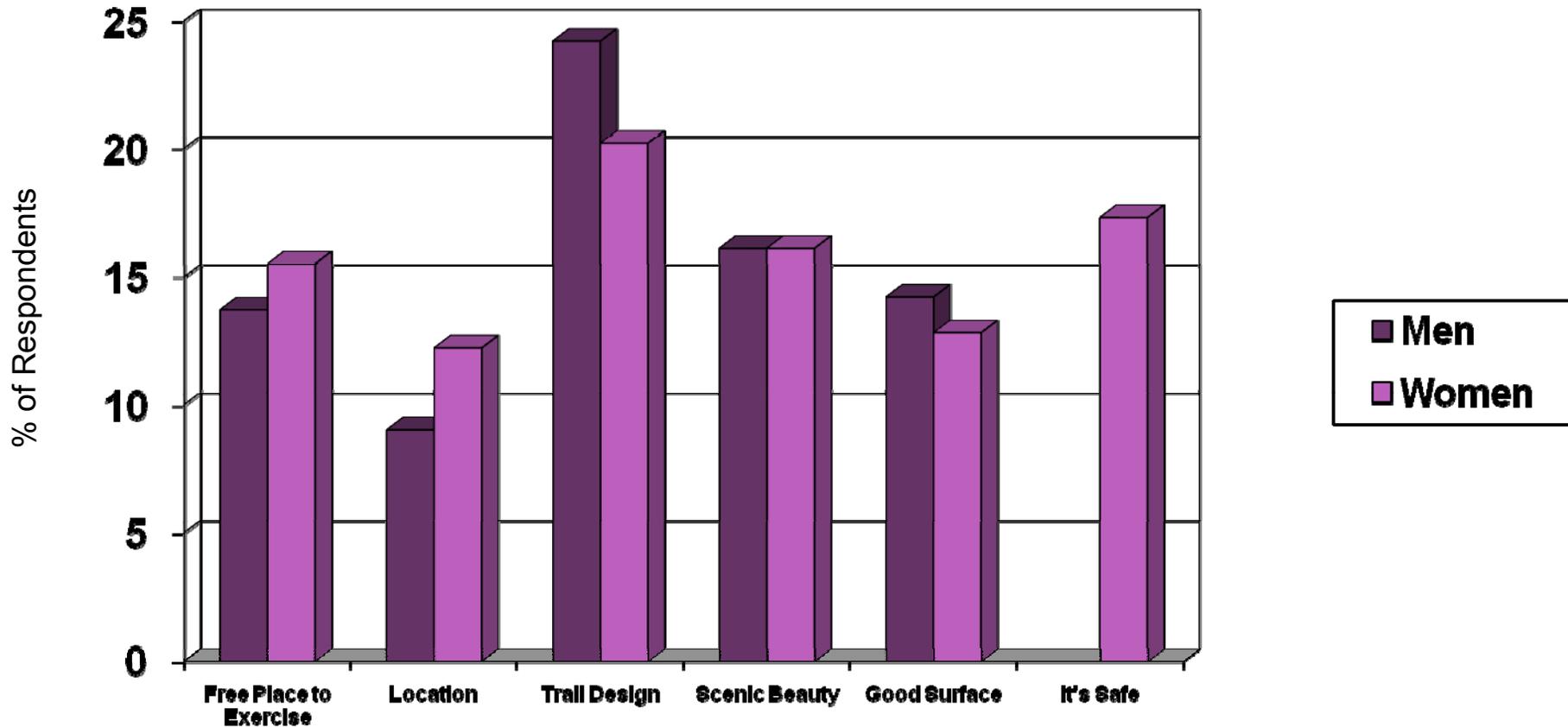
Rating of Rail-Trail Segment Maintenance



Rating of Rail-Trail Segment Safety

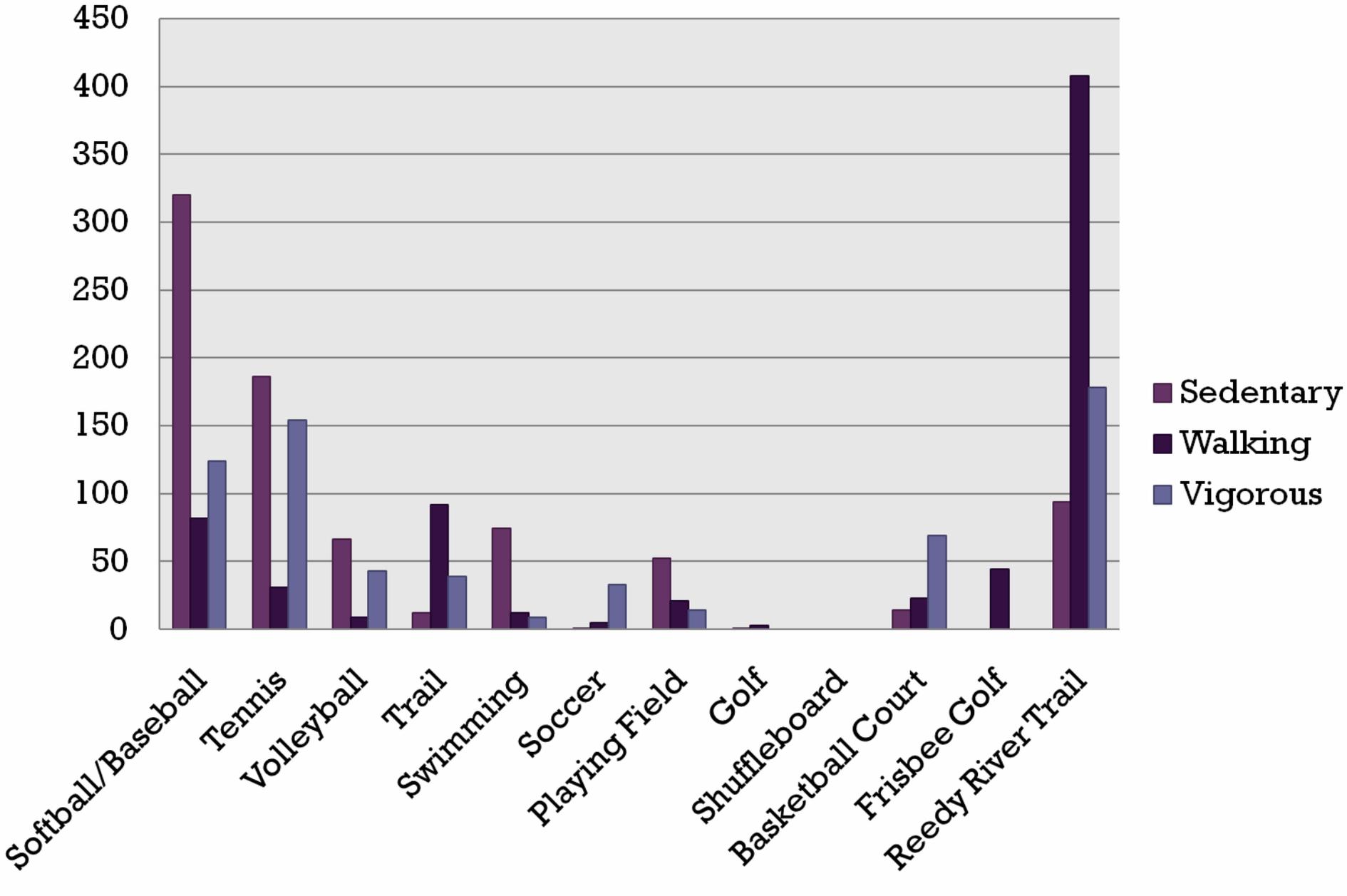


What Users Like Most About the Rail-Trail Segment



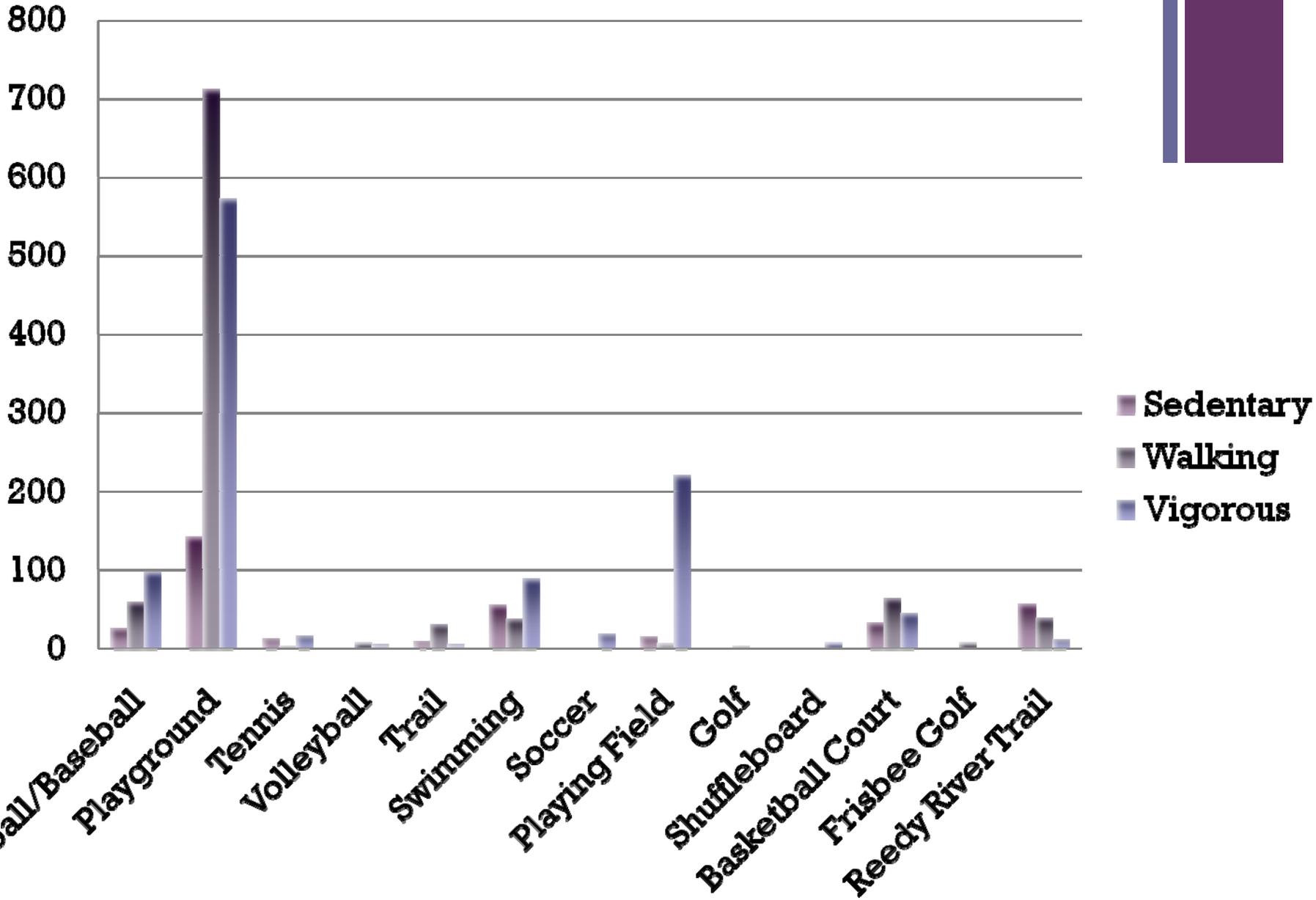
Park Activity Frequencies

Adult

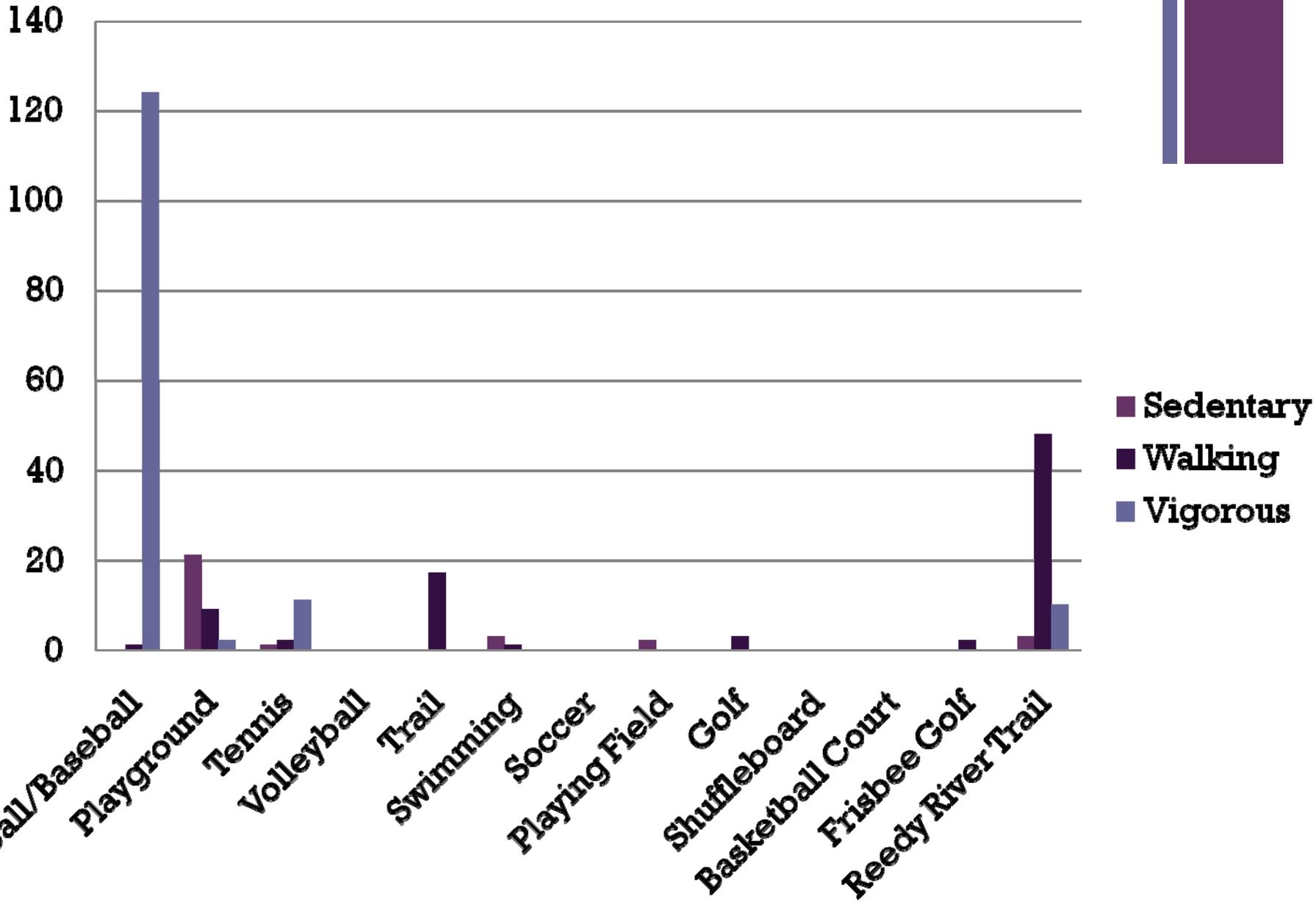


Park Activity Frequencies

Child

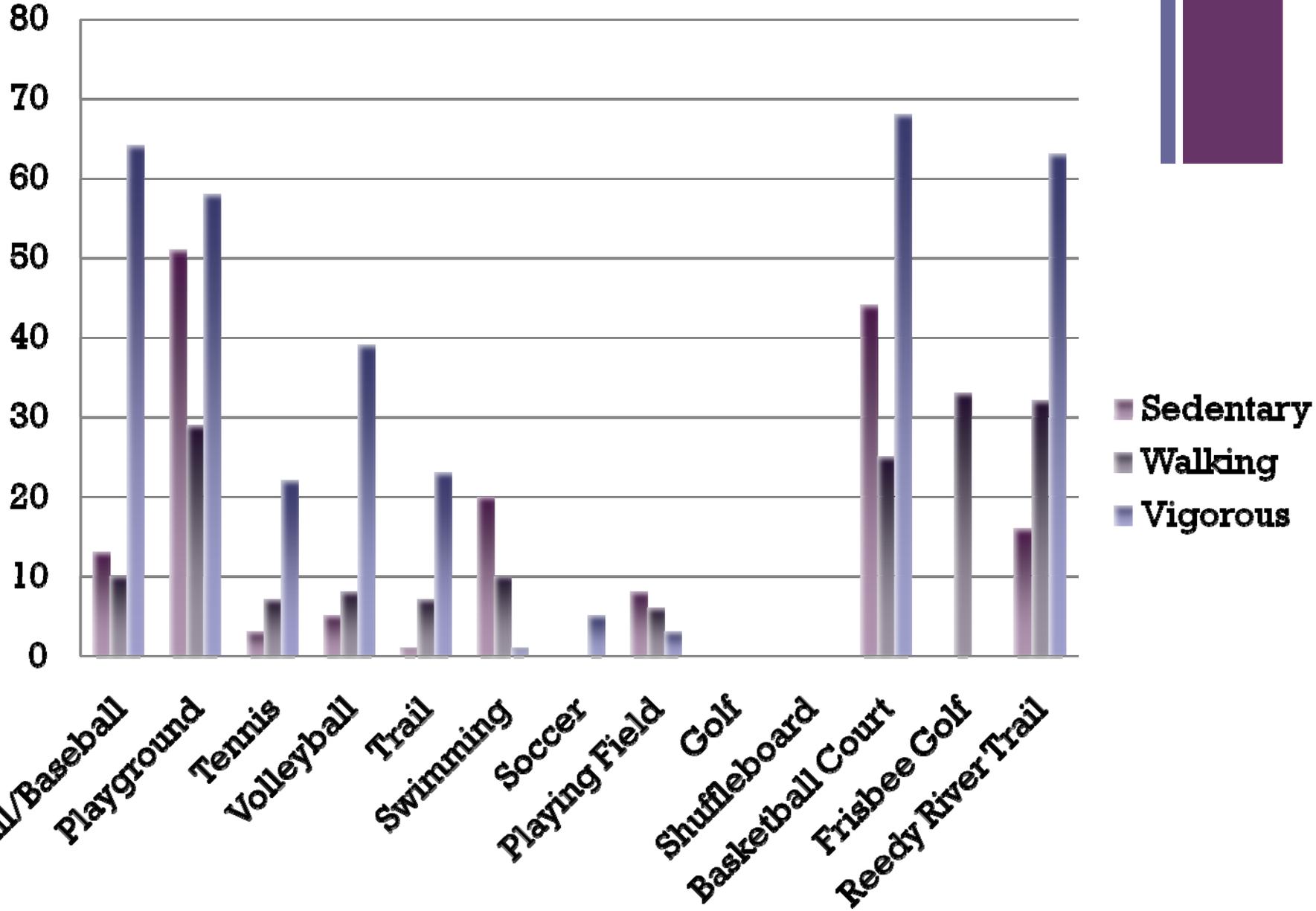


Park Activity Frequencies Elderly



Park Activity Frequencies

Teen



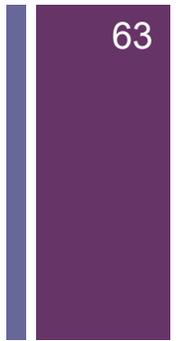
62

- Sedentary
- Walking
- Vigorous

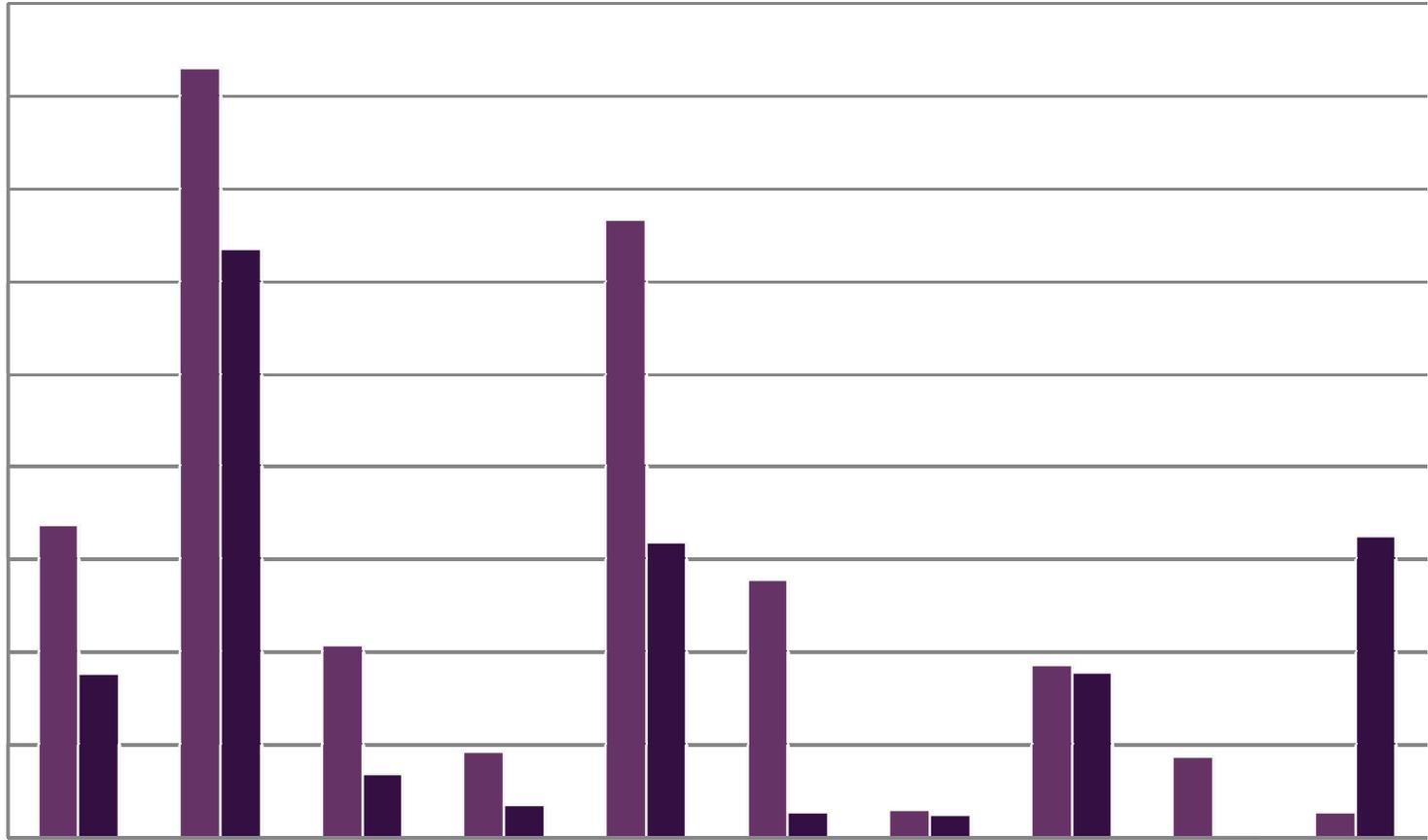


Target by Ethnicity

White and Other



900
800
700
600
500
400
300
200
100
0



White
Other

Softball/Baseball
Playground
Tennis
Volleyball
Trail
Swimming
Soccer
Playing Field
Frisbee Golf
Basketball Court