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Walking Programs to Promote Weight Loss among Obese and Overweight Individuals: Walking Buses for Adults

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Abstract

Objective—To assess whether the concept of a walking bus program is a viable option for increasing physical activity and weight loss among overweight and obese adults

Methods—A pilot study was conducted where 45 overweight and obese participants were monitored over an 8 week period and their walking bus use and weight changes were measured longitudinally.

Results—Participants who utilized the walking bus were more likely than those who did not use the walking bus to lose weight. Black walking bus users were less likely to lose weight than non-black walking bus users. 98% of participants said they would likely participate in a walking bus program again.

Conclusions—Walking buses programs are a viable option to promote weight loss among overweight and obese adults.

Keywords

walking; intervention; weight loss; group exercise

Introduction

Obesity is a serious concern in the state of Alabama; data from the 2012 Behavior Risk Factor Surveillance System (BRFSS) reveal a 30%–35% self-report obesity rate among Alabama adults [1]. One possible explanation for the high rate of obesity in the state is lack of physical activity. According to the Centers for Disease Control and Prevention (CDC), more than 32% of Alabama adults are physically inactive [2].

The purpose of this study is to determine whether applying a program that encourages walking as a form of transportation, called walking buses, can encourage physical activity and increase weight loss among overweight and obese adults by incorporating walking into individuals' lifestyles. Walking buses have traditionally used for transporting children to school with high rates of success in promoting weight loss, academic achievement, pedestrian safety, and social cohesion [3–6]. Walking buses are similar to traditional buses

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—they have designated routes, stops, and drivers, but passengers walk in a group rather than ride in a vehicle to reach their destinations. A previous study by the researchers [7] demonstrated a high interest among adults in Birmingham, Alabama to utilize walking buses, with health reasons (increasing exercise and losing weight) cited as the greatest motivating factor for participating in a walking bus program.

The current study reports how participation in a walking bus pilot program in Birmingham, Alabama affected physical activity and obesity outcomes, and specifically, how race affected participants' walking bus utilization and changes in weight.

Methods

A preliminary online survey was distributed to all individuals who were students or employed at University of Alabama at Birmingham and a paper survey was administered to individuals who lived within a 1.5 mile distance of the neighborhoods in Birmingham where the study was implemented. This study is described in greater detail in a past publication (7). Participants were asked a series of questions including whether they would use a walking bus, desired routes and times, their height, and weight. From these questions we selected 45 participants to monitor walking bus use and steps per day measured using Health Mobius pedometer. Participants were chosen based on similar interest of routes and if they had a BMI of 25 or higher. Additionally, participants were chosen to ensure a racial diverse group of participants. This longitudinal study included 29 obese and 12 overweight adults between the ages of 23 and 63. All participants signed informed consents and the IRB of UAB approved this study. There were 25 black and 20 non-black participants and the sample was mostly female (41 females and 4 males). Our sample was highly educated with 16 having some college, 13 a bachelor degree, and 16 having a graduate or professional degree, though annual household income was more evenly distributed with about half the sample making less than \$50,000 a year. Walking bus use and which routes were used are reported weekly by the participants. Lastly, participants were weighed using a Taylor body fat scale in light clothing and no shoes prior to the start of the walking bus program and at the end of the study.

Statistical Analyses

Using univariate and bivariate statistics we examined changes in weight and steps per day over an eight week period to see if walking bus use was associated with change in weight status among obese and overweight adults.

Results

Walking Bus Use

Nineteen participants (42.2%) reported use of the walking bus, a relatively low participation rate given that 73.5% of respondents initially stated that they would probably or definitely participate. Time limitations were identified as the most important factor for nonparticipation among participants (47.6%) and 98% of participants reported willingness to participate in walking buses in the future. 52.2% of black participants reported use,

compared to 26.3% of non-black participants. None of the four male participants reported use of the walking bus.

Weight Loss

Weight loss was observed in over half of participants (54.5%) during the study period. Table 2 displays raw changes in BMI and percent change in obese and overweight by walking bus use status. Differences in weight loss by walking bus use were noted such that 70.6% of walking bus users lost weight while only 40% of non-users lost weight (Figure 1). Furthermore, mean BMI decreased for walking bus users and increased for non-users. Of the 17 participants (37.8%) who lost at least one pound during the study period, weight loss ranged from 1 to 23.2 pounds with a mean weight loss of 5.5 pounds. Figure 2 illustrates that both black and non-black walking bus users experienced weight loss.

Discussion

This research examined whether walking buses are an effective way to promote physical activity and weight loss among obese and overweight individuals. Participants were encouraged, but not required to use the walking buses. While participation in the walking bus program was relatively low, only 42.2% participated, those who did participate had lost weight and there was a decline in obesity prevalence compared to individuals who did not use the walking bus.

Additionally, our results show important differences in race. Compared to non-black participants, who were overwhelmingly white, black participants received the largest benefit in walking bus use. The benefits of walking bus use for black women are of special note, given that black middle aged women have the highest rates of obesity [8]. Walking buses may be a viable option to reduce racial disparities in obesity among women.

Walking is the simplest, most accessible, and preferred method of physical activity prescribed for the treatment and prevention of obesity [9, 10]. Additionally, it is important to make walking part of a lifestyle change and incorporate it into daily activities, such as using it as a form of commuting. Exercising in groups also is the preferred method of support to increase physical activity among inactive adults [9, 11] Though participation rate for our initial pilot project was low, 98% of participants stated that they would use the walking buses again, suggesting that these types of programs may be a viable way to increase physical activity among overweight and obese individuals.

Acknowledgments

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What is already known about this subject

- Walking buses have been successfully implemented as a form of commuting for young children
- Walking buses increase physical activity and are associated with improved outcomes for children

What this study adds

- To date, no one has attempted to see if walking buses are an effective means of commuting among adults or if participation in walking buses is associated with changes in weight among obese and overweight individuals.
- Individuals who used the walking bus lost more weight over the eight week study period than individuals who did not use the bus. Weight loss was even more pronounced for the black individuals than the non-black, largely white, individuals
- This study suggests that walking buses may be a viable way to increase physical activity and weight loss among obese and overweight adults.

Table 1

Baseline, Final, and Change Measurements for Select Study Variables (*n* = 45)^{1,2}

	Users (<i>n</i> = 19)			Non-Users (<i>n</i> = 26)		
	Baseline	Final	Change	Baseline	Final	Change
Body mass index	35.10 (6.59)	34.84 (6.59)	-0.267 (n.s)	33.27 (7.41)	33.51 (7.49)	+0.236 (n.s)
Obese	76.5%	70.6%	-5.9%	56%	60%	+4.0%
Overweight	23.5%	29.4%	+5.9%	44%	40%	-4.0%

¹ Standard deviations are in parentheses.

² Study conducted in 2013 in Birmingham, Alabama, USA