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Developing Point-of-Decision Prompts to Encourage Airport Walking: The Walk to Fly Study

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Abstract

Background—Point-of-decision prompts may be appropriate to promote walking, instead of using a mechanized mode of transport, such as a train, in airports. To our knowledge, no current studies describe the development of messages for prompts in this setting.

Methods—In-person interviews were conducted with 150 randomly selected airport travelers who rode the train to their departure gate. Travelers reported various reasons for riding the train to their gate. They were asked about messages that would encourage them to walk. Exploratory factor analysis was conducted for reasons for riding the train. Confirmatory factor analysis was conducted for messages to encourage walking to the departure gate.

Results—Travelers reported not knowing walking was an option (23.8%), seeing others riding the train (14.4%), and being afraid of getting lost (9.2%) as reasons for riding the train. Many indicated that directional signs and prompts promoting walking as exercise would encourage them to walk instead of riding the train.

Conclusions—Some reasons for riding the train in an airport may be modifiable by installing point-of-decision prompts. Providing directional signs to travelers may prompt them to walk to their gate instead of riding the train. Similar prompts may also be considered in other community settings.

Keywords

Regular aerobic physical activity can reduce the risk of heart disease, stroke, type 2 diabetes, and some cancers.[1] Less than half of US adults, however, engage in enough aerobic activity to meet current public health recommendations.[2] Walking is an activity that is commonly reported among those who meet these recommendations.[3] Because of its simplicity, low cost, and accessibility, walking can be an important public health strategy.[4]

One setting where walking promotion has yet to be examined is airports. Walking between terminals, concourses, or gates is possible in most US airports, but many airports have mechanized modes of transport, such as trains or shuttles that allow travelers to ride instead of walk. Intervening at the point where travelers make decisions about their mode of

transport may encourage active transportation, such as walking, rather than passive transportation, such as riding the train or shuttle. With millions of travelers passing through major airports each day, promoting walking in this setting may have substantial reach.[5]

Point-of-decision prompts, which are motivational signs placed at locations where people must make a decision, are a recommended strategy to increase physical activity by encouraging stair use.[6] This strategy has been used to prompt people to climb stairs rather than use an escalator or elevator in several public venues, but may also be effective in encouraging walking in airport settings.[7] We found no studies, however, that have examined point-of-decision prompts to encourage walking instead of using mechanized modes of transport.

To develop an effective point-of-decision prompt to encourage airport walking, we need to understand the reasons travelers choose not to walk in airports. Some of these reasons, such as fear of getting lost in an unfamiliar venue or not knowing that walking options exist, could be addressed through point-of-decision prompts. In contrast, not wanting to sweat, feeling too tired, not enjoying walking, and not having enough time are general barriers to walking,[8–16] that may require different strategies, including in airports.

Developing appropriate, audience-specific messages to prompt travelers to walk at the point of decision is essential for these types of interventions.[17,18] In other settings, such as university and office buildings, shopping malls and train stations, prompts were successful when they conveyed messages about the health benefits of physical activity and the ability to save time by not waiting for an elevator.[19,20] Because airport travelers may have different barriers and reasons for using mechanized modes of transport, different messages may be needed to prompt walking in this setting. The purpose of this study was to examine the reasons travelers choose to ride the train rather than walk to their departure gates, and to determine their support for messages to prompt them to walk instead.

Methods

This study was conducted in a large metropolitan airport in the southeastern United States. Structured interviews with airport travelers were used to assess reasons for riding the train in the airport and messages to prompt walking. In-person interviews were conducted with a random sample of airport travelers during one of two randomly chosen blocks of time (morning/early afternoon or afternoon/early evening) from March through July 2013. All study protocols and materials were approved by the Institutional Review Board of the Centers for Disease Control and Prevention. All airport travelers who participated in the study gave informed consent.

Sample Selection

Seating areas in the airport were randomly selected on the basis of probability proportional to size. Participants were randomly selected from the selected seating areas. A sequential bisection method that is based on distribution of travelers in the seating area was used to randomly select one traveler to interview from each seating area. This strategy is based on

previously published spatially balanced sampling methods.[21] Travelers were excluded if they did not speak English.

Questionnaire

A trained interviewer administered a questionnaire to assess 1) the reasons travelers chose to ride the train to the departure gate (9 items) and 2) messages to prompt travelers to walk instead of riding the train (11 items). The questionnaire is available from the first author, upon request.

Questionnaire Development—The questionnaire was created using Epi Info 7 (available from the Centers for Disease Control and Prevention) and uploaded onto a hand-held tablet that was used to record traveler responses. Interview questions were also printed in a spiral-bound booklet and shown to the traveler as each question was read aloud by the interviewer.

Because the literature did not have information on barriers and incentives for walking in airports, questionnaire items on reasons for riding the train were developed after reviewing the literature on walking and point-of-decision prompts designed to encourage stair use.[7,11,14,19,22] The studies on point-of-decision prompts used questionnaires to assess attitudes toward climbing stairs instead of using mechanized modes of transport, such as escalators and elevators.[7,19,22] Walking studies provided insight about barriers to walking during leisure time and for transportation.[11,14] Questions about messages to prompt walking were based on themes such as time, health, and exercise that were suggested in studies designed to increase stair use,.[19,20]

Travel Information—Travelers reported their purpose for travel (business, leisure, both, or other), how long they had been waiting at their gate (1–4 minutes, 5–9 minutes, 10–29 minutes, or 30 or more minutes), and the nature of their trip (originating from the study airport, connecting from a gate on a different concourse, or connecting from a gate on the same concourse). If they reported that their trip was originating from the study airport or that they were connecting from a gate on a different concourse, they were asked if they rode the airport train or walked to the departure gate. Those who were connecting at a gate on the same concourse did not have the opportunity to decide whether to ride the train or walk and were therefore not asked the remaining survey questions.

Reasons for Riding the Train—Travelers who reported riding the airport train were asked a series of questions about hypothesized reasons for riding the train to their departure gate. Travelers responded "yes," "no," or "not sure" to nine reasons: 1) Everyone else was riding the train; 2) I did not know walking was an option; 3) I did not have enough time; 4) Walking was too difficult; 5) I was afraid of getting lost; 6) I am not wearing suitable clothing for walking; 7) I did not want to sweat; 8) I do not like walking; and 9) Riding the train is more fun than walking.

Messages to Prompt Walking—Travelers were also presented with a series of messages to encourage walking instead of riding the train. To each of the following messages, travelers responded whether they were "very unlikely," "unlikely," "likely," or "very likely" to be

encouraged to walk: 1) Walking takes about two more minutes than riding the train to the next stop; 2) A map showing directions to the gates makes walking easy; 3) Signs showing directions to the gates make walking easy; 4) Walking makes me healthier; 5) Walking is good for health, according to CDC; 6) Walking instead of riding the train is better for the planet; 7) Walking burns calories; 8) Walking helps maintain weight; 9) Walking helps me get exercise; 10) Walking is fun; and 11) Walking lets me enjoy the art and music along the walkway.

Participant Characteristics—The traveler's sex (male or female) and age group (18–24 years, 25–44 years, 45–64 years, or 65 years or older) were recorded. Travelers reported their ethnicity (Hispanic/Latino, Not Hispanic/Latino) and which race(s) applied to them (white, black or African American, Asian, Native Hawaiian/Other Pacific Islander, or American Indian/Alaska Native). Travelers interviewed on a Monday, Tuesday, Wednesday, Thursday, or Friday were considered "weekday travelers" and those interviewed on a Saturday or Sunday were considered "weekend travelers."

Statistical Analysis

To account for the greater probability of selection of people who wait longer at the gate, each response was weighted by the inverse of reported waiting time. The survey oversampled women business travelers to ensure adequate sample size. Survey weights accounted for oversampling. Results of statistical tests were deemed significant if $P < 0.05$.

Descriptive Statistics—The proportions of travelers reporting "yes" to each reason for riding the train and the proportions of those reporting "likely" or "very likely" to each message to encourage walking were examined by sex, age group, travel purpose, and day of travel. Chi-square tests were performed to test for significant differences among subgroups (by sex, age group, travel purpose, and day of travel) in reasons for riding the train and in messages to encourage walking. Because the proportion of people whose travel purpose was classified as "both" (leisure and business) or "other" was small, these categories were excluded when we tested for differences by travel purpose. Because of sample sizes, age was dichotomized into two groups (18–44 years and 45+ years) for all analyses.

Exploratory Factor Analysis—Exploratory factor analysis (EFA) was performed to examine the underlying structure of travelers' reasons for riding the train to their departure gate and how the reasons should be grouped together. The EFA used maximum likelihood estimation and allowed the factors to correlate. The number of factors to be retained was based on the number of factors with eigenvalues greater than one. Criteria for the minimum loading of an item was set at 0.30.

Confirmatory Factor Analysis—Confirmatory factor analyses were conducted to verify that the survey questions (items) represented distinct themes (factors) (for messages: exercise, directional signs, health, enjoyment, and environment). Parameter estimates were obtained using the maximum likelihood estimation procedure. [23–25]

The fit to the model factor structure was evaluated with a two-index presentation strategy.[26] Criteria for acceptable fit included the following: the model chi-square goodness of fit

statistic with a *P* value > 0.15, the root mean square error of approximation (RMSEA) with a value 0.06, and the standardized root mean square residual (SRMR) with a value 0.09.[26] Modifications to the models were limited to correlations among the themes and correlated errors among similar items.

Factor-based scores were created by calculating the mean of the items within each theme. Multivariate analyses of variance, within a mixed model framework, were conducted using the factor-based scores for themes for messages to prompt walking. To assess whether differences in the themes overall or by participant characteristics, each model included main effects for participant characteristics (sex, age group, travel purpose, and day of week) and an indicator of the theme. The model also included interaction terms between participant characteristics and themes to identify whether any differences among participant characteristics were consistent across all themes. Because there were more than two message themes to prompt walking, post hoc tests using Bonferroni's adjustment for pairwise comparisons were used to identify the differences.

All statistical analyses were conducted with SAS software, version 9.3 (SAS Institute Inc., Cary, NC) and SAS-callable SUDAAN (Research Triangle Institute, Research Triangle Park, NC) to account for the sample weighting.

Results

Participant Characteristics and Travel Information

Interviews were initiated with 397 travelers. Of the 247 (62.2%) who consented to participate, 185 were eligible (34 were excluded because they did not change concourses in the airport; 28 because of missing information on whether they changed concourses). Of those eligible, 156 rode the airport train and 29 chose to walk. Among train riders, 150 completed the questionnaire. The final sample of 150 travelers included those who rode the train to reach their departure gate. More males (56%) than females (44%) completed the questionnaire (Table 1). The majority of participants were weekday (69%) leisure travelers (57%) older than age 45 (63%).

Reasons for Riding the Train

The most commonly reported reasons for riding the train were as follows: Riding the train is more fun than walking (34.7%), I did not know walking was an option (23.8%), I did not have enough time (21.4%), and Walking was too difficult (20.9%) (Table 2). Not having enough time to walk was reported more commonly by males (28.1%) than females (9.7%). Females were more likely (33.1%) than males (13.9%) to report that walking was too difficult. Travelers older than age 45 years (28.5%) were also more likely to report this reason than those aged 18–44 years (8.7%).

The eigenvalues for the EFA of reasons for riding the train suggested that two factors should be retained. In the first iteration of the EFA, three items did not significantly load on either factor, and those items were removed. The second iteration resulted in all items loading onto one of the two factors, with one item (I was afraid of getting lost) cross-loading on both factors. The first factor that represented reasons related to individual preferences consisted

of four items: I did not have enough time, I was afraid of getting lost, I am not wearing suitable clothing for walking, and I did not want to sweat. The second factor that represented reasons related to the airport environment (or were external) consisted of three items: Everyone else was riding the train, I was afraid of getting lost, and I did not know walking was an option (Table 3). The first factor had an eigenvalue of 2.08, with 34.7% of the variance explained. The second factor had an eigenvalue of 1.33, with 22.2% of the variance explained.

Messages to Prompt Walking

Travelers responded favorably to all messages to prompt walking (Table 4). The proportion of travelers who reported the proposed messages would likely or very likely prompt them to walk to the departure gate ranged from 53.7% (Walking is fun) to 79.7% (Signs showing directions to the gates make walking easier). More females than males reported that the following messages would prompt them to walk: A map showing directions to the gates makes walking easy (85.4% vs 60.9%) and Walking instead of riding the train is better for the planet (72.4% vs 52.5%). Signs showing directions to the gates were more likely to prompt travelers aged 18–44 years (89.9%) than older than age 45 years (73.4%). Finally, a map showing directions to the gates was more likely to prompt leisure travelers (81.5%) than business travelers (53.9%) to walk.

The items of the factors that represented the themes of directional signs (3 items), exercise (3 items), health (2 items), enjoyment (2 items), and environment (1 item) showed standardized loadings of 0.60 to 1.00 (Table 5). All items significantly loaded onto these five factors. The fit of the hypothesized five-factor structure with correlated factors and uncorrelated errors showed adequate fit for messages to prompt walking (Model 2: model χ^2 (36) = 85.3, $P < 0.001$; RMSEA = 0.10 (0.07, 0.10); SRMR = 0.07). After modifying the model by correlating the errors for the questions within each theme, the fit demonstrated a slight improvement in the RMSEA and a slight decline in the SRMR (model χ^2 (34) = 53.6, p = 0.017; RMSEA = 0.06 (0.03, 0.09); SRMR = 0.13).

Factor-Based Scores

This study found a significant difference between the two factors of reasons for riding the train by sex (F (1,286) = 4.19, $P = 0.042$). Post-hoc testing did not show differences between sexes for either factor. No other significant differences were observed.

Travelers responded favorably to all five themes to prompt walking (Table 6). On a scale from 0 (very unlikely to prompt walking) to 4 (very likely to prompt walking), all mean factor-based scores were 2.8 (environmental) to 3.1 (exercise). A significant main effect was identified by theme (F (4,739) = 5.79, $P < 0.001$). Post-hoc, pairwise tests showed that messages that focused on directional signs (3.0) were significantly more likely to encourage walking than those focused on enjoyment (2.8) or the airport environment (2.8). Significant main effects were also identified by sex (F (1,739) = 11.65, $P < 0.001$) and travel purpose (F (3, 739) = 4.81, $P = 0.002$). A pairwise difference was observed between business and leisure travelers.

Relationship Between Reasons for Riding the Train and Messages to Prompt Walking

The factor that represented reasons for riding the train that were related to the airport environment was significantly correlated with directional signs (r = 0.29, *P* < 0.05) and enjoyment (r = 0.17, *P* = 0.035). The factor related to individual preferences was not significantly correlated with any message themes. All message themes were significantly correlated with each other (r = 0.39–0.78; *P* < 0.05).

Discussion

Our findings show that providing prompts with directional messages may address some of the reasons for riding the train in an airport, and encourage travelers to walk to their departure gate instead.

Although we found no studies directly comparable to ours, other studies have assessed reasons for not choosing physical activity at a point of decision.[19,20,22] In these studies, convenience, habit, laziness, and lack of time are reasons for choosing mechanized modes of transport (elevator or escalator) instead of taking the stairs.[19,22] In these studies, however, unfamiliarity with walking options as a reason not to engage in physical activity was not assessed.[19,20,22] This reason was likely not assessed because these studies were conducted in settings frequented by regular users who are familiar with the physical layout of the facility (eg, university and office buildings, shopping malls, and health care facilities).[19,20,22] People in these settings are likely to choose the escalator or elevator for a different reason than not knowing how to access the stairs.

Some of the reasons that airport travelers reported riding the train may be addressed through the use of point-of-decision prompts. These reasons largely relate to the environment of the airport and a lack of information such as how to reach your destination by walking and how long it will take to walk. Large airports, such as the one in this study, often have varied and complex layouts that may be unfamiliar to some travelers and therefore difficult to navigate. This factor may lead travelers to use mechanized modes of transport instead of walking.

We also assessed travelers' support for messages to prompt walking instead of riding the train to their departure gate. We found support for messages that included information about walking options, such as directions, a map of the airport, and the amount of time it takes to walk. Travelers also reported that messages about the health benefits of walking, such as getting exercise, improving health, and burning calories, were likely to prompt them to walk instead of ride the train.

Few studies exist to directly compare our findings on themes and messages to prompt walking. Several previous studies provide information on appropriate and effective messages for point-of-decision prompts to encourage stair use instead of escalators or elevators.[19,20,22] These studies did not observe that providing directional information would increase the proportion of people choosing to take the stairs.[19,20,22] As stated previously, the differences in findings may be because existing studies on point-of-decision prompts were conducted in settings where users are more likely to be familiar with the option to take the stairs and how to access them.[19,20,22]

Our findings that health and exercise themes would prompt walking are consistent with findings from previous studies on point-of-decision prompt messages.[19,20,22] For example, in a survey of elevator users, promoting health benefits and calorie burning emerged as key themes that would encourage people to use the stairs instead of the elevator.[19]

Although including both directional information and health messages to encourage physical activity at a point of decision may seem beneficial, the specific environment and reasons people choose not to be active need to be considered. When developing signs for a fast-paced environment, like an airport, the amount of information provided on a prompt cannot overwhelm the viewer.[27] Research suggests that signs with too much information may actually cause confusion.[28] These findings emphasize the importance of systematic development and prioritization of messages, taking into account the barriers to be addressed.

Our findings indicate that in an airport setting, clear and concise directional prompts may be more appropriate and therefore more effective because they address reasons for riding the train that could be influenced by point-of-decision prompts. While informational messages are not typically used as point-of-decision prompts and do not technically fall within the operationalized definition of a point-of-decision prompt (a motivational sign at a location where one must make a decision), these messages may be considered motivational if providing the information may encourage behavior change (e.g. walking instead of riding the train).

Our study is subject to limitations. Questionnaires were completed with travelers at one airport. Travelers at other airports may cite different reasons for riding the train, and responses to messages to prompt walking may also vary. Because questionnaires were completed over a 3-month period in the spring, they may not have captured seasonal differences in characteristics of travelers, reasons for riding the train, and the effectiveness of messages to prompt walking. However, seasonal variations in indoor walking (versus outdoor walking) may be less subject to this bias. Travelers were also asked to respond to pre-established lists of reasons for riding the train and messages to prompt walking. This survey method may have prevented respondents from citing other reasons or messages that may have emerged as common themes. To ascertain additional information about other themes, travelers were given the option to respond to an open-ended, follow-up question after each list. Most respondents declined to give any other input, thus limiting this bias. The use of this novel approach to developing messages to prompt walking in an airport is a strength in this study. Furthermore, our surveys were conducted with a representative probability sample of travelers at the busiest airport in the world (based on passenger volume).

Conclusions

To our knowledge, this study is the first to assess reasons for riding the train to the departure gate in a major airport and the messages that travelers think would prompt them to walk instead. Many travelers at the large metropolitan airport we studied ride the train to their gate because they are unfamiliar with options to walk. Travelers stated that directional signs would prompt them to choose walking.

The findings of this study have real-world implications. Airports are venues where people could choose to incorporate physical activity into their day by walking to the departure gate, but many may not because they are unaware that it is an option, or they are afraid of getting lost. Providing directional information on signs at the point of decision may prompt more people to choose walking instead of using a mechanized mode of transport, such as a train.

Small "nudges" like these could have large-scale influence. By giving people information about the different choices available at a point of decision, they may find it easier to make the more physically active choice. This strategy could eventually shift people's default decision from choosing a mechanized mode of transport to choosing an active mode. The choice to be physically active by walking to the departure gate at an airport may help people see how they can incorporate walking as part of their daily activities.

Acknowledgments

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Table 1

Distribution of Participant Characteristics, Overall and by Sex (n = 150)

	Total		Males		Females	
	n[a]	%[b] (SE)	n[a]	%[b] (SE)	n[a]	%[b] (SE)
Age group						
18–44	55	38.3 (4.7)	31	40.0 (6.2)	24	35.2 (7.1)
45+	95	61.7 (4.7)	53	60.0 (6.2)	42	64.8 (7.1)
Travel purpose						
Business	55	36.2 (4.7)	37	47.5 (6.3)	18	16.6 (4.5)
Leisure	85	58.2 (4.8)	41	47.3 (6.3)	44	77.3 (5.3)
Both	8	4.4 (1.6)	5	4.2 (1.9)	3	4.8 (2.8)
Other	2	1.1 (0.8)	1	1.0 (1.0)	1	1.3 (1.3)
Day of week						
Weekday	103	65.1 (4.8)	58	62.0 (6.4)	45	70.5 (6.7)
Weekend	47	34.9 (4.8)	26	38.0 (6.4)	21	29.5 (6.7)
Total	150	100.0	84	100.0	66	100.0

[a]Unweighted sample size.

[b]Weighted percentages; some percentages do not sum to 100% due to rounding.

Note: Age group dichotomized from four groups (18–24, 25–44, 46–64, 65+ years) to two groups for analysis.

Table 2

Percentage (Standard Error) of Respondents Reporting "Yes" to Reasons for Riding the Train

Reasons for Riding the Train	Total % (SE)	Sex Male % (SE)	Sex Female % (SE)	Age Group 18–44 % (SE)	Age Group 45+ % (SE)	Travel Purpose[a] Business % (SE)	Travel Purpose[a] Leisure % (SE)	Day of Travel Weekday % (SE)	Day of Travel Weekend % (SE)
Riding the train is more fun than walking.	34.7 (4.6)	35.1 (6.0)	33.9 (7.0)	36.8 (7.6)	33.4 (5.7)	32.6 (7.7)	36.2 (6.1)	35.2 (5.5)	33.6 (8.1)
I did not know walking was an option.	23.8 (4.2)	19.3 (4.7)	31.6 (7.7)	28.3 (7.0)	20.9 (5.3)	23.8 (6.9)	24.9 (5.8)	28.8 (5.2)	14.5 (7.1)
I did not have enough time.[b]	21.4 (4.1)	28.1 (5.9)	9.7 (3.4)	27.5 (7.1)	17.6 (5.0)	18.3 (6.2)	23.4 (5.8)	20.6 (4.9)	22.9 (7.7)
Walking was too difficult.[b,c]	20.9 (3.6)	13.9 (3.7)	33.1 (6.8)	8.7 (3.4)	28.5 (5.2)	19.1 (5.7)	20.5 (4.7)	20.6 (4.0)	21.5 (6.8)
Everyone else was riding the train.	14.4 (3.4)	11.8 (3.8)	19.0 (6.4)	15.6 (5.5)	13.6 (4.3)	9.4 (4.4)	17.8 (5.0)	14.8 (3.9)	13.6 (6.4)
I was afraid of getting lost.	9.2 (3.4)	6.2 (3.8)	14.4 (6.6)	8.9 (5.5)	9.4 (4.4)	3.0 (1.7)	13.9 (5.6)	6.9 (3.4)	13.5 (7.3)
I did not want to sweat.	8.7 (2.9)	10.6 (4.2)	5.5 (2.7)	10.8 (5.9)	7.5 (2.8)	14.4 (5.3)	6.1 (3.7)	6.3 (2.5)	13.4 (6.6)
I do not like walking.	6.0 (2.4)	4.3 (3.0)	9.0 (4.1)	5.8 (3.5)	6.2 (3.2)	9.0 (5.2)	4.8 (2.5)	6.7 (3.2)	4.8 (3.5)
I am not wearing suitable clothing for walking.	5.3 (2.5)	4.1 (3.3)	7.5 (3.8)	8.2 (5.3)	3.5 (2.2)	3.4 (2.1)	7.1 (4.0)	3.6 (2.1)	8.6 (5.8)

[a]Respondents travelling for business only or leisure only (n = 140).

[b]Significant difference between sexes (*P* < 0.05).

[c]Significant difference between travelers aged 18–44 and 45+years (*P* < 0.05).

Note: Weighted percentages and 95% confidence intervals of "yes" among those who answered "yes," "not sure," or "no" to each reason for riding the train are presented; SE = standard error.

Table 3

Rotated Factor Loadings for Items Related to Reasons for Riding the Train

	Factors	
Reasons for Riding the Train	**Reasons related to individual preference[a]**	**Reasons related to airport environment[b]**
Everyone else was riding the train.	0.06	**0.67**
I did not know walking was an option.	−0.12	**0.39**
I did not have enough time.	**0.34**	−0.11
Walking was too difficult.[c]	n/a	n/a
I was afraid of getting lost.	**0.43**	**0.43**
I am not wearing suitable clothing for walking.	**0.61**	0.16
I did not want to sweat.	**0.71**	−0.09
Riding the train is more fun than walking.	**0.30**	0.03
I do not like walking.[c]	n/a	n/a

[a]Eigenvalue of 2.08 with 34.7% of the variance explained.

[b]Eigenvalue of 1.33 with 22.2% of the variance explained.

[c]Item was removed because it did not load on either factor.

Note: n/a = not applicable because item was removed. Bold numbers in each column indicate items loading on that factor.

Table 4

Percentage (Standard Error) of Respondents Reporting "Likely" or "Very Likely" to Messages to Prompt Walking, Overall and by Traveler Characteristics

Messages to Prompt Walking	Total	Sex		Age Group		Travel Purpose[a]		Day of Travel	
		Male	Female	18–44	45+	Business	Leisure	Weekday	Weekend
	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)
Signs showing directions to the gates make walking easier.[b]	79.7 (3.9)	76.2 (5.4)	85.8 (4.6)	89.9 (4.2)	73.4 (5.5)	75.9 (6.9)	83.6 (4.8)	80.1 (4.7)	78.9 (6.8)
Walking helps me get exercise.	79.2 (3.9)	78.7 (5.0)	80.1 (6.3)	80.7 (6.0)	78.3 (5.1)	71.2 (7.4)	84.1 (4.7)	85.2 (3.5)	68.1 (8.5)
Walking takes about 2 more minutes than riding the train to the next stop.	75.1 (4.2)	70.1 (5.7)	83.8 (5.2)	73.1 (6.8)	76.4 (5.2)	65.2 (8.1)	81.6 (4.5)	75.7 (4.9)	74.1 (7.5)
Walking makes me healthier.	74.3 (4.2)	72.0 (5.6)	78.4 (6.3)	75.6 (6.5)	73.6 (5.6)	67.4 (7.7)	78.1 (5.3)	78.2 (4.7)	67.2 (8.3)
Walking burns calories.	74.0 (4.5)	69.6 (6.0)	81.7 (6.1)	74.9 (6.6)	73.5 (5.9)	68.4 (7.9)	76.9 (5.7)	77.7 (4.9)	67.2 (8.7)
Walking helps maintain weight.	72.1 (4.3)	70.8 (5.6)	74.3 (6.5)	76.0 (6.3)	69.7 (5.7)	63.5 (8.0)	76.7 (5.1)	74.2 (4.7)	68.1 (8.5)
A map showing directions to the gates makes walking easy.[c,d]	69.9 (4.6)	60.9 (6.3)	85.4 (4.7)	73.9 (7.2)	67.3 (5.9)	53.9 (8.3)	81.5 (5.0)	72.4 (5.3)	65.1 (8.6)
Walking is good for health, according to CDC.	69.6 (4.3)	69.2 (5.5)	70.3 (6.9)	66.5 (7.1)	71.5 (5.4)	63.1 (7.9)	76.1 (5.1)	67.8 (5.2)	73.0 (7.6)
Walking lets me enjoy the art and music along the walkway.	66.1 (4.7)	59.7 (6.2)	77.1 (6.5)	67.5 (7.4)	65.2 (6.1)	56.8 (8.3)	74.7 (5.8)	70.6 (5.2)	57.5 (8.9)
Walking instead of riding the train is better for the planet.[c]	59.8 (4.8)	52.5 (6.3)	72.4 (6.8)	63.1 (7.6)	57.8 (6.1)	51.1 (8.3)	64.9 (6.1)	59.0 (5.7)	61.3 (8.6)
Walking is fun.	53.7 (4.8)	50.1 (6.3)	59.8 (7.5)	45.0 (7.9)	59.0 (6.0)	42.6 (8.3)	61.5 (6.2)	56.6 (5.6)	48.2 (8.9)

[a] Respondents travelling for business only or leisure only (n = 140).

[b] Significant differences between travelers aged 18–44 and 45+years (P < 0.05).

[c] Significant differences between sexes (P < 0.05).

[d] Significant differences between business and leisure travelers (P < 0.05).

Note: Weighted proportion of travelers responding "likely," or "very likely" to messages to prompt walking are presented.

Table 5

Themes (Factors) and Factor Loadings (Standard Error) in Messages to Prompt Walking

Themes	Messages	Factor Loading (SE)[a]	Standardized Factor Loading[a]
Directional Signs	A map showing directions to the gates makes walking easy.	0.69 (0.06)	0.81
	Signs showing directions to the gates make walking easier.	0.58 (0.06)	0.72
	Walking takes about 2 more minutes than riding the train to the next stop.	0.54 (0.06)	0.67
Exercise	Walking burns calories.	0.73 (0.06)	0.86
	Walking helps maintain weight.	0.66 (0.05)	0.82
	Walking helps me get exercise.	0.66 (0.05)	0.82
Health	Walking is good for health, according to CDC.	0.72 (0.06)	0.84
	Walking makes me healthier.	0.68 (0.06)	0.77
Enjoyment	Walking is fun.	0.43 (0.06)	0.61
	Walking lets me enjoy the art and music along the walkway.	0.48 (0.07)	0.60
Environment	Walking instead of riding the train is better for the planet.	0.80 (0.05)	1.00

[a] All loadings significant ($P < 0.05$)

Note: Model fit indices: model χ^2 (34) = 53.6, $P = 0.017$; root mean square error of approximation = 0.06 (0.03, 0.09); standardized root mean square residual = 0.13.

Table 6

Means (Corresponding Standard Errors) for Factor-Based Scores for Message Themes to Prompt Walking

Message Themes[a,b,c]	Total	Sex		Age Group		Travel Purpose[d]		Day of Travel	
		Male	Female	18–44	45+	Business	Leisure	Weekday	Weekend
Exercise	3.1 (0.1)	3.0 (0.1)	3.2 (0.1)	2.9 (0.1)	2.7 (0.1)	2.9 (0.1)	3.2 (0.1)	3.1 (0.1)	3.0 (0.1)
Directional Signs	3.0 (0.1)	2.9 (0.1)	3.3 (0.1)	3.1 (0.1)	3.0 (0.1)	2.8 (0.1)	3.2 (0.1)	3.1 (0.1)	3.0 (0.1)
Health	3.0 (0.1)	2.9 (0.1)	3.1 (0.1)	2.9 (0.1)	3.0 (0.1)	2.9 (0.2)	3.0 (0.1)	3.0 (0.1)	2.9 (0.2)
Enjoyment	2.8 (0.1)	2.7 (0.1)	2.9 (0.1)	3.0 (0.1)	3.1 (0.1)	2.6 (0.1)	2.9 (0.1)	2.8 (0.1)	2.7 (0.1)
Environment	2.8 (0.1)	2.6 (0.1)	2.9 (0.1)	2.6 (0.1)	2.8 (0.1)	2.6 (0.1)	2.9 (0.1)	2.7 (0.1)	2.8 (0.1)

[a] Significant main effect for themes ($F_{(4, 739)} = 5.79$, $P < 0.001$); significant ($P < 0.005$) post-hoc pairwise comparisons (exercise > environment, directional signs > enjoyment, directional signs > environment).

[b] Significant main effect for sex ($F_{(1, 739)} = 11.65$, $P < 0.001$).

[c] Significant main effect for travel purpose ($F_{(3, 739)} = 4.81$, $P = 0.002$); significant pairwise difference between business and leisure travelers ($P < 0.005$); differences between travelers reporting "both" and "other" were not tested and are not included.

[d] Factor-based score means for respondents travelling for business only or leisure only are not reported.

Note: Messages (messages to prompt walking): possible range very unlikely (1) to very likely (4).