



KEY POINT SUMMARY

OBJECTIVES

This study looks to expand upon prior research by examining the influence of personal, social, and environmental factors on adult Korean walking behavior through the conceptual framework of the TPB to predict walking behavior among Korean adults.

Perceived Neighborhood Environments and Leisure-Time Walking Among Korean Adults: An Application of the Theory of Planned Behavior

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Key Concepts/Context

The prevalence of overweight and obese Korean adults has risen due to physical inactivity that is supported by a sedentary lifestyle. Recent research has sought to understand the interconnection between the Theory of Planned Behavior (TPB) and environmental variables such as sidewalk condition, land-use mix, proximity of parks or recreational facilities, neighborhood aesthetics, and perceived neighborhood safety.

Methods

For this study a cross-sectional survey was conducted with a convenience sample of 424 participants. Participants were recruited in local malls and parks in the southern part of the Seoul metropolitan area by six trained researchers. Participants were 18 years and older, and informed consent was obtained prior to survey distribution.

The questionnaire consisted of items that were based on the Physical Activity and Quality of Life Questionnaire. A pretest of the questionnaire was conducted with 30 park users to ensure ease of understanding. Adaptations to the final questionnaire were implemented following the pretest. The final questionnaire measured the following six criteria: (1) perceived neighborhood environments, (2) intention, (3) attitude, (4) subjective norms, (5) perceived behavioral control (PBC), and (6) leisure-time walking.

Perceived neighborhood environments were assessed through 10 items associated with various aspects of the environment. Each item was preceded by the following question: "To what extent do you agree or disagree with each of the following about



DESIGN IMPLICATIONS

When considering the design of healthy communities for Korean adults, design interventions aimed at reducing crime and the perception of crime should be considered. Other design considerations should be interesting streetscapes with interventions that address the cleanliness of streets, as these interventions encourage walking and create a more positive perception of neighborhoods.

walking in your neighborhood?” Analysis of these items was conducted using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Mean values were calculated for four aspects of the neighborhood environment.

Intention was assessed through three questions associated with level of intention. Analysis of these questions was conducted using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores for each question were summed. Higher values represented stronger intentions.

Attitude was assessed through four sets of items used as an anchor to the following question: “For me, participating in regular leisure-time walking is”. Analysis of these items was conducted using a 5-point bipolar adjective scale. Scores were summed for each set of items. Higher scores represented more positive attitudes about being physically active.

Subjective norms were assessed through three questions that examined participants’ beliefs regarding physical activity in relation to family or close friends. Analysis of these questions was conducted using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores were summed for each question. Higher scores represented greater perceptions of approval toward being physically active.

Perceived behavioral control (PBC) assessed through three questions associated with analysis of these questions was conducted using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Scores were summed for each question. Higher values represented greater perceived behavioral control for being physically active.

Leisure-time walking was assessed through two questions associated with the frequency of walking and the number of usual walking minutes. Analysis of these questions was conducted by multiplying the frequency of walking by the number of usual minutes to obtain total estimated minutes of walking each week. Data was then dichotomized into *any* or *no walking*.

Due to a lack of response to specific questions, 11 questionnaires were excluded from the analysis. A total of 413 participant responses were used for this analysis. Analysis was conducted using SPSS 4.0 and AMOS 7.0. Internal consistency was measured using by computing Chronbach's alpha coefficient. Chi-square analyses and t-tests were used to compare the differences of perception and sociodemographic characteristics between walkers and nonwalkers. Pearson's correlation test was used to assess bivariate correlations between TPB constructs, perceived environment variables, and walking. Significant ($p < 0.05$) walking correlates were then integrated with the TPB model to predict walking. Relationships among the variables of interest were analyzed using path analysis. The TPB model was tested with and without the environmental variables.



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Findings

Of the participants studied, 67% (n= 277) of respondents engaged in walking exercise for an average of 86.2 minutes per week. Almost 33% (n= 136) reported doing no exercise or recreation at all during the week. Participants in their fifties and sixties reported significantly more walking than participants in their twenties. The results also showed that married participants walked more frequently for exercise than unmarried participants.

When examining the comparison between TPB constructs of intention, attitude, subjective norm, and perceived behavioral control and perceived environmental characteristics between walkers and nonwalkers, only one environmental feature was found to show a statistically significant difference between walkers and nonwalkers. Neighborhood aesthetics was associated with a more positive perception among walkers.

The bivariate correlations of the TPB constructs and environmental variables with walking showed that walking is correlated with intention, PBC, and perceived crime safety. Intentions were moderately to strongly associated with attitude and subjective norm. Intentions were also found to correlate with the environmental variables of perceptions of neighborhood aesthetics, traffic safety, and crime safety.

The path analysis showed a modest fit to the data. Intention was reported to have the strongest direct effect on walking. However, the direct effect of PBC on walking was also supported in this model.

To examine the contribution of environmental variables as predictors of walking, perceived crime safety was integrated into the TPB model, as it was the only significant relationship with the dependent variable of walking. The results showed a moderate fit with intention and walking. These results express perceived crime safety as indirectly predicting walking through the TPB model.

Ultimately, these results show that among Korean adults perceived safety and neighborhood aesthetics are important environmental variables.

Limitations

One limitation to this study is the small sample size in relation to the number of variables examined. Also, the environmental variables were self-reported, not objectively measured. Another limiting factor to this study is the location where it was conducted. However, this limitation also opens the door to future studies examining the same measurements within various cultural demographics to determine consistency and generalizability across different populations.