

Walking Behavior and Perceived Physiological Wellness Through the Lens of the Theory of Planned Behavior

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Abstract

This study examined the relationship between walking behavior and perceived physiological wellness among adults walking at Dipolog Boulevard. The research was anchored on the Theory of Planned Behavior and the Health Belief Model, which explain how attitudes, social influences, and perceived control shape walking behavior. A quantitative, cross-sectional, descriptive-correlational design was used with 100 purposively sampled adults aged 18 and above. Data were collected using a structured self-administered questionnaire assessing walking frequency, duration, distance, planned walking behavior, and dimensions of physiological wellness including cardiovascular endurance, muscular strength, metabolic regulation, and weight management. Findings revealed that respondents engaged in moderate walking frequency and duration, demonstrated positive attitudes, low subjective norms, and low perceived behavioral control. Physiological wellness was high in cardiovascular endurance and muscular strength, but lower in metabolic regulation and weight management. Correlation and regression analyses indicated no significant relationship between planned walking behavior and perceived physiological wellness, and no TPB component significantly predicted wellness outcomes. The study concluded that behavioral intentions alone may not translate directly into physiological wellness. It recommended interventions that enhance social support and perceived behavioral control to sustain walking engagement. The research supports Sustainable Development Goal 3 by promoting community health and SDG 11 by encouraging active and accessible public spaces. Its sustainability impact lies in fostering community well-being, informing urban planning for health-promoting environments, and enhancing social and public health initiatives.

Keywords: Cardiovascular Endurance, Muscular Strength, Perceived Behavioral Control, Physiological Wellness, Planned Walking Behavior, Subjective Norms, Walking Behavior, Weight Management

1. Introduction

Regular walking reduces blood pressure, resting heart rate, body fat, and cholesterol while enhancing oxygen delivery and cardiovascular endurance (Flynn & Hall, 2018; Diaconășu et al., 2024). Beyond physiological effects, it improves psychological health, mitigating anxiety, depression, and cognitive decline (Hollander et al., 2021). Community spaces such as Dipolog Boulevard in Zamboanga del Norte facilitate walking for residents of Dipolog City and nearby municipalities, offering an informal setting for physical activity (Dipolog Boulevard, n.d.). However, local empirical evidence on walking frequency, duration, and intensity, as well as its physiological and psychological effects, is limited. Walking is influenced by intrapersonal factors (motivation, self-efficacy), interpersonal support, and environmental conditions, consistent with the Social Ecological Model (Sallis et al., 2019; Bauman et al., 2020; Cerin et al., 2017; Tan, 2021). Urban design, including pedestrian-friendly infrastructure, parks, and lighting, affects engagement in walking behavior (Cerin et al., 2017; Zhao et al., 2024). The Theory of Planned Behavior (TPB) explains walking as a function of attitudes, subjective norms, and perceived behavioral control, with these constructs predicting behavioral intentions and adherence (Artes, 2025; Lee et al., 2025; Mandal et al., 2023; Caso et al., 2020). Studies indicate that positive attitudes and perceived behavioral control are stronger predictors of walking behavior than subjective norms, though social influence remains significant in cultural and community contexts (Rhodes et al., 2007; Lee & Shepley, 2012).

Philippine studies show that regular walking improves BMI, cardiovascular efficiency, and energy levels, with Metro Manila adults benefiting from at least 6,000 daily steps (De Guzman & Sarmiento, 2021; Ramos, 2022; Tolentino & Sigua, 2022). In Mindanao, walking is recognized as an accessible and socially acceptable health-promoting activity (Turingan, 2020). Globally, walking interventions enhance physiological wellness across populations, supporting cardiovascular, muscular, metabolic, and weight management outcomes (Flynn & Hall, 2018; Mondal & Mazumder, 2024; Diaconășu et al., 2024; Ibeneme et al., 2024; Fauzi et al., 2023). The study integrates the Theory of Planned Behavior (Ajzen, 1991) and the Health Belief Model (Becker, 1974). TPB posits that behavior is guided by attitude, subjective norms, and perceived behavioral control, determining behavioral intention and actual engagement (Artes, 2025; Lee et al., 2025; Souza et al., 2024; Danquah et al., 2022; More & Phillips, 2022; Mandal et al., 2023). The Health Belief Model complements TPB by

accounting for perceived benefits, barriers, and health outcomes that influence participation in walking (Meng et al., 2024; Moshki et al., 2019). Together, these frameworks provide a comprehensive understanding of cognitive, social, and environmental factors affecting walking and physiological wellness.

While global evidence supports walking as a health-promoting activity, local studies are limited in assessing the behavioral determinants and direct physiological outcomes of walking among adults in the Philippines. Most existing research focuses on step counts, BMI, or urban walkability, with insufficient integration of behavioral theory and physiological effects (De Guzman & Sarmiento, 2021; Ramos, 2022; Tolentino & Sigua, 2022; Turingan, 2020). This study addresses these gaps by examining the relationships between walking behavior, TPB constructs, and perceived physiological wellness among adults walking along Dipolog Boulevard.

This research aligns primarily with SDG 3 – Good Health and Well-Being, by promoting sustainable physical activity for cardiovascular, muscular, metabolic, and weight management outcomes. It also contributes to SDG 11 – Sustainable Cities and Communities, emphasizing the role of urban public spaces in facilitating health-promoting behaviors, and SDG 4 – Quality Education, by increasing awareness of health benefits and behavioral determinants of walking. The study offers multidisciplinary contributions by informing public health strategies, urban planning, community wellness initiatives, and educational programs. Findings may guide Local Government Units, health professionals, and urban planners in designing accessible walking infrastructures and interventions. Moreover, it supports community sustainability by promoting consistent engagement in physical activity, enhancing quality of life, and reducing the risk of non-communicable diseases (WHO, 2023; Fauzi et al., 2023; Diaconășu et al., 2024).

2. Material and methods

2.1 Research Design

A cross-sectional design was utilized to collect data at a single point in time, allowing assessment of relationships between walking behavior and physiological wellness. The descriptive component provided a comprehensive overview of respondents' walking patterns and self-reported wellness, while the correlational aspect quantified the strength and direction of associations among TPB constructs—attitude, subjective norms, and perceived behavioral control—and physiological wellness outcomes (Aprecia et al., 2022).

2.2 Locale of the Study

The research was conducted at Dipolog City Boulevard, a coastal esplanade in Dipolog City, Zamboanga del Norte, Philippines. The boulevard features wide pedestrian pathways, scenic views, and accessible locations, attracting residents from Dipolog and nearby municipalities including Dapitan City, Polanco, Katipunan, and Roxas. The site provides an informal community-based fitness space where walking occurs primarily during early morning hours due to favorable environmental conditions, reduced heat and humidity, minimal traffic, and a calm atmosphere conducive to consistent physical activity.

2.3 Respondents of the Study

Participants were adults aged 18 years and above who regularly engage in walking activities at Dipolog Boulevard. The sample included a substantial proportion of middle-aged (40–60 years) and older adults. Respondents were relevant for examining the relationship between walking and physiological wellness due to their consistent engagement in walking for transportation, exercise, or recreation, providing meaningful empirical evidence of real-world physical activity behaviors.

2.4 Sample and Sampling Procedure

A purposive sampling method was employed to select 100 respondents who met inclusion criteria, supplemented by quota considerations to ensure representation of middle-aged and older adults frequently observed at the boulevard (Etikan, Musa, & Alkassim, 2016). Eligibility was confirmed through screening questions on walking frequency, duration, and purpose. This sample size exceeds the minimum threshold for correlational and multiple regression analyses, ensuring adequate statistical power for examining relationships among TPB constructs and physiological wellness outcomes (Cochran, 1977).

2.5 Research Instrument

Data were collected using a structured self-administered questionnaire divided into three sections. The first assessed TPB constructs—attitude, subjective norms, and perceived behavioral control—using a 4-point Likert scale. The second measured walking behavior (frequency, duration, and purpose) adapted from the International Physical Activity Questionnaire (IPAQ) Long Form (IPAQ Research Committee, 2005). The third evaluated perceived physiological wellness using items from the Perceived Wellness Scale (PWS) and PROMIS Physical Function Short Form. Content validity was ensured through expert review, while reliability was established via a pilot test yielding Cronbach's alpha of 0.80, indicating acceptable internal consistency (George & Mallery, 2003; Taber, 2018).

2.6 Data Gathering Procedure

Approval from the University Research Ethics Committee (UREC) and permissions from the Dean of Graduate Studies, City Mayor, and Barangay Council were obtained. Participants were approached with informed consent forms and completed the questionnaire either via pen-and-paper or online platforms. Completed responses were checked for completeness, encoded, and prepared for statistical analysis under researcher supervision.

2.7 Data Analysis Techniques

Descriptive statistics, including frequency, percentage, mean, and standard deviation, summarized respondents' walking behavior, planned walking behavior, and physiological wellness. Inferential analysis employed Pearson's correlation to determine relationships between walking behavior and wellness, and multiple linear regression to identify which TPB components significantly predict physiological wellness. Statistical analyses were performed using IBM SPSS and Microsoft Excel, with significance set at 0.05. This approach ensured rigorous interpretation of both descriptive profiles and predictive associations among variables.

2.8 Ethical Considerations

Participation was voluntary, with no coercion. Personal identifiers were not collected to ensure privacy and confidentiality in compliance with the Data Privacy Act of 2012 (Republic Act No. 10173). Participants were informed of their right to withdraw without penalty. Completed data were securely stored, with hard copies in a locked cabinet and electronic files password-protected, retained for five years before proper disposal.

3. Results and Discussion

3.1 Walking Behavior of the Respondents

3.1.1 Walking Frequency

The respondents generally showed moderate walking frequency, with the largest group walking three to four days per week. The overall mean of 2.51 indicates that walking is practiced by many respondents, although not yet consistently as a daily habit. This suggests that walking is recognized as beneficial but is not fully integrated into regular routines. The finding supports the view that walking behavior is influenced by motivation, social support, and access to safe walking spaces (Sallis et al., 2019; Bauman et al., 2020; Cerin et al., 2017).

3.1.2 Walking Duration

The most common walking duration was 20–39 minutes per session, while the overall mean of 2.43 indicates low walking duration. This means that respondents generally walk for short to moderate periods rather than sustaining longer sessions. This implies that endurance, fatigue, health condition, age, and psychological readiness may affect walking time. The result is consistent with the World Health Organization (2020), which recommends 150–300 minutes of moderate activity weekly, while recognizing that duration depends on functional capacity and tolerance to fatigue. Woods et al., 2021 also explained that adults with consistent activity patterns tend to sustain longer walking durations.

3.1.3 Walking Distance

Respondents showed varied walking distances, with no dominant distance category. Some walked less than one kilometer, while others exceeded three kilometers, showing a broad range of physical engagement. This variation suggests differences in physical capacity, confidence, lifestyle, health condition, and environmental support. Older adults with stronger self-efficacy are more likely to sustain both short and long-distance walking, while safe environments and social support encourage continued walking practices (National Institute on Aging, 2019; American College of Sports Medicine, 2021).

3.2 Planned Walking Behavior

3.2.1 Attitude Toward Walking

The overall mean of 2.55 indicates that respondents had a high level of attitude toward walking. They were generally aware of walking's health benefits and held favorable views toward it. This means that respondents' positive attitude may support intention formation. The finding is aligned with the Health Behavior Model (Rosenstock, 1966), which suggests that perceived benefits influence health behavior, and with literature showing that attitude affects participation in physical activity (Bauman et al., 2020; Sallis et al., 2021).

3.2.2 Subjective Norms

The overall mean of 2.46 indicates a low level of subjective norms. Walking appeared to be viewed more as a personal activity than a socially expected behavior. This implies that limited social reinforcement may weaken actual walking behavior despite awareness of its benefits. Previous studies show that subjective norms influence health-related behaviors, especially when individuals perceive support or approval from significant others (Bauman et al., 2020; Sallis et al., 2021; Cerin et al., 2017).

3.2.3 Perceived Behavioral Control

The overall mean of 2.42 indicates low perceived behavioral control. Respondents perceived limited capability or opportunity to walk consistently due to possible barriers such as time constraints, fatigue, environmental issues, and competing responsibilities. This suggests that walking is not yet fully established as part of respondents' daily routines. World Health Organization 2020 emphasized that insufficient physical activity may result from lack of time, unsafe environments, and limited access to recreational spaces. Icek Ajzen (Theory of Planned Behavior, 1991) also explains that lower perceived behavioral control reduces the likelihood of actual performance.

3.3 Perceived Physiological Wellness

3.3.1 Cardiovascular Endurance

The respondents reported high perceived cardiovascular endurance, with an overall mean of 2.53. This indicates confidence in sustaining walking activities without easily experiencing fatigue. This finding suggests that respondents perceive themselves as physically capable, which may encourage continued walking. It is consistent with World Health Organization (2019), Monte (2021), and Bauman et al. (2020), who emphasized that regular walking improves heart function, stamina, and physical activity participation. World Health Organization 2020 and National Institute on Aging, 2019 also noted that regular activity improves cardiorespiratory fitness and functional capacity.

3.3.2 Muscular Strength

The overall mean of 2.52 indicates high perceived muscular strength. Respondents generally viewed themselves as capable of performing daily physical activities such as walking and other routine movements. This implies that walking supports functional fitness and independence. The result is consistent with WHO (2019), Monte (2021), World Health Organization (2020), and the Centers for Disease Control and Prevention (2024), which recognize regular movement as important for maintaining muscular strength, mobility, and physical function.

3.3.3 Metabolic Regulation

The overall mean of 2.45 indicates low perceived metabolic regulation. Respondents viewed their energy balance and physiological functioning as adequate but not highly efficient. This suggests that unstable energy levels, fatigue, and reduced stamina may limit longer or more frequent walking. According to the World Health Organization (2020), insufficient physical activity may disrupt energy balance and metabolic regulation, contributing to fatigue and reduced capacity for sustained exercise.

3.3.4 Weight Management

Respondents showed a generally low perception of walking's effectiveness for weight management. Although they recognized walking as part of a healthy lifestyle, they did not strongly perceive its practical impact on weight control. This indicates a gap between awareness and experienced benefits. The finding is consistent with World Health Organization (2019) and Monte (2021), who noted that walking contributes to weight control when performed consistently. Bauman et al. (2020) also emphasized that perceived benefits can strengthen motivation to continue physical activity.

3.4 Differences Based on Walking Frequency

The analysis showed no statistically significant difference in planned walking behavior across walking frequency groups, $F(3, 96) = 1.85, p = 0.142$. Although mean scores increased from 2.32 among those walking one to two days weekly to 2.74 among daily walkers, the differences were not significant. This suggests that planned walking behavior does not automatically vary according to actual walking frequency. The result reflects the intention-behavior gap, where positive intentions may not lead to consistent action due to barriers such as environment, time, and daily responsibilities. The analysis also showed no statistically significant difference in perceived physiological wellness when grouped by walking frequency, $F(3, 96) = 1.21, p = 0.309$. Mean scores slightly increased from 2.41 to 2.66 across walking frequency groups, but the difference was not significant. This means that more frequent walking did not automatically produce significantly higher perceived wellness. The result suggests that wellness perception may also depend on lifestyle, environment, and psychological factors, consistent with Widyawati, 2023; Wang, 2024; and Westenhöfer, 2023.

3.5 Relationship Between Planned Walking Behavior and Perceived Physiological Wellness

The correlation result showed a weak negative relationship between planned walking behavior and perceived physiological wellness, $r = -0.121$. The p-value of 0.231 was greater than 0.05, indicating that the relationship was not statistically significant. This means that stronger planned walking behavior was not significantly associated with higher perceived physiological wellness. The finding suggests that planned walking behavior and perceived wellness may operate as relatively independent constructs in this sample.

3.6 Predictors of Perceived Physiological Wellness

The regression analysis showed that attitude, subjective norms, and perceived behavioral control did not significantly predict perceived physiological wellness. The overall model was not significant, $F(3, 96) = 0.488, p = .691$. Attitude had

$B = -0.058$, $p = .416$; subjective norms had $B = -0.053$, $p = .457$; and perceived behavioral control had $B = -0.041$, $p = .523$. This indicates that the Theory of Planned Behavior components did not meaningfully predict physiological wellness in this study. The result may suggest that walking intensity, duration, regularity, and environmental conditions may be insufficient to produce strong perceived wellness outcomes among respondents.

4. Conclusion & Recommendations

The study concluded that adults engaging in walking at Dipolog Boulevard exhibited moderate frequency and duration of walking, with varying distances covered. Respondents generally reported high attitudes toward walking but low subjective norms and perceived behavioral control. Perceived physiological wellness was high for cardiovascular endurance and muscular strength, yet lower for metabolic regulation and weight management. Correlation and regression analyses indicated no statistically significant relationship between planned walking behavior and perceived physiological wellness, and the components of the Theory of Planned Behavior—attitude, subjective norms, and perceived behavioral control—did not significantly predict physiological wellness outcomes (Flynn & Hall, 2018; Diaconășu et al., 2024; Fauzi et al., 2023; Hollander et al., 2021; WHO, 2024).

Based on these findings, it is recommended that interventions and health promotion strategies focus on enhancing perceived behavioral control and social support to increase consistent walking engagement among adults. Local Government Units, health professionals, and community planners should provide supportive infrastructure, organized walking programs, and awareness campaigns to encourage sustained participation. These measures can help bridge the intention–behavior gap, potentially improving metabolic regulation and weight management while reinforcing cardiovascular and muscular health (Artes, 2025; Mandal et al., 2023; Lee et al., 2025).

Compliance with ethical standards

The authors declare no conflict of interest. This study complied with recognized ethical standards for human-participant research by ensuring voluntary participation with informed consent, the right to withdraw without penalty, and strict confidentiality through anonymous, secure, and aggregated data handling. Given the focus on psychological well-being, procedures were non-invasive, and safeguards were observed to minimize discomfort, with guidance to appropriate support services when needed, and required institutional permissions were secured for instrument use and access to academic records.

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