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Factors Affecting Pedestrian Walking in Baybay City, Leyte

BY

RAYMUND M. IGCASAMA[1*], LEONEL E. AVELLANA III[2] DHAN VICTOR C. NUÑEZ[3], ZIAN-SC GERARD A. PARADELA[4], KETURAH CHRISTINE ANNE B. POTOT[5], HUGH C. RAMOS[6], JOSH RAFAEL L. TABROSA[7]

[1,2,3,4,5,6,7]Visayas State University

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Corresponding author:

Raymund M. Igcasama

Abstract

This study identified the factors that influence the likelihood of walking amongpedestrians in Baybay City, Leyte, Philippines, a first-class component of around 111,000 inhabitants. The number of the target population was based on the Annual Average Daily trafficrecord provided by the DPWH. Data surveyed from 114 respondents using a questionnaire were analyzed using independent sample T-tests and Pearson's r test of correlation. Results showed significant relationships between psychological attributes and the likelihood to walk. Sociodemographic attributes (gender occupational status) showed a significant relationship. Males tend to walk in good weather. Multiple linear regression resulted in models showing various factors of walking. This suggests that programs and initiatives must be centered on maintaining a good perception of walking, investing in infrastructure and development that is inclusive of walking, and being sensitive to the needs of pedestrians from all sociodemographic backgrounds.

Keywords: walk ability, pedestrians, walking, correlation, multiple linear regression,

INTRODUCTION

Rationale

Motorized modes of transportation have traditionally been important in developing countries like the Philippines in boosting the country's investment climate, fundamental services such as education, health, and infrastructure, as well as upholding law and order. As individual private motorized transport became widespread during the twentieth (20^{th}) century,public transport and urban walkability became less apparent as major priorities of transport planning and urban design. The unsustainable nature of the current urban transportation systemis well-recognized (May et al.; 2003; Kennedy et al., 2005; Glover & Low, 2020). The issues concerned included energy-saving, minimizing the instability of fossil fuel, limiting emissions, protecting the local and global ecology, maintaining human health, supporting safety, creating economic vitality, and pursuing social equity. As concern for future urban sustainability increases, walking is again being recognized as an important mode of urban transport. Much of the renewed attention on urban walkability is associated with concerns that car-dependent cities will not be sustainable in the future, due to energy costs, fuel availability, traffic congestion, pollution, and other environmental impacts. The reported benefits of walking are not new; it's common knowledge that people benefit physically when are active.

Walkability in this research revolves around the definitions given by certain literature. Walkability is associated with the qualities of the walking area based on an individual's abilityand reaction which are influenced by the psychological and perception of the physical features (Ewing et.al, 2006). Walkability is a serious factor at this time since there is a growing awareness of the benefits of transport diversity and advocacy for establishing more walkable communities. Better walkability evaluation tools can help in many transportations and land use planning decisions (Sælensminde, 2004).

Objectives of the study

In response to recent calls for more research (Bricka et al., 2012; Smith, 2009) in this area, the study addressed the following research objectives:

In general, the objective of this research is to gain a better understanding of the pedestrians in Baybay city center, whose lifestyle could be directly influenced by the locality's nature of

walkability.

Moreover, the specific objectives of this study are (i) to investigate the relationship between the likelihood to walk and other variables (i.e., sociodemographic data, physical environment, location, attitudinal beliefs), (ii) to identify determinants that significantly influence pedestrians' likelihood to walk, and (iii) to discover what factors deter pedestrians from walking.

Scope and Limitations of the study

The scope of the research is limited to several aspects. Firstly, the study area only focused on the Baybay City center. The area within Baybay city center has been identified as being significant to the concerns and appropriate for the investigation to achieve the study's objectives. Aside from that, the city center was chosen for the case study because it has a major history and significance in terms of the city's structural, economic, and social facets. The Baybay City center area has a large concentration of pedestrians and serves as the city's public transportation hub.

This study was also limited in examining the aspects that influence people's decision to walk in the city center rather than measuring walkability based on the criteria for a walkable environment. As a result of this limitation, the impression of people was evaluated rather than the qualities of environmental components in establishing a walkable environment.

As mentioned in the objectives of this study, "it is aimed to gain a better understandingof the pedestrians in Baybay city center, whose lifestyle could be directly influenced by the locality's nature of walkability". Due to time constraints, the researchers were unable to collect the necessary number of respondents for the sample. Given that the average annual daily traffic (AADT) on the Tacloban-Baybay road is approximately 6,529, the researchers were unable togeneralize the results based on only 114 respondents.

Locale of the study

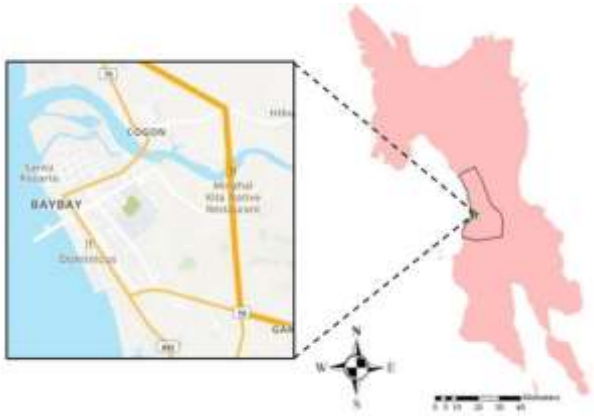

Figure 1: Location and vicinity map of the research locale

The locale of the study is in the area within Baybay City Center. Baybay City is a first-class component city in the province of Leyte, with a population of 111,848 people, according to the 2020 Census of Population and Housing (Philippine Statistics Authority (PSA), 2020).

This study focused on the core of the area of study, which are streets that hold similar attributes as (i) the significant access points for the commercial area in Baybay City, (ii) located within the various economic activities that occur, and (iii) major streets of the city with a greater percentage of pedestrians. This area with the said attributes served as the observation area for the survey. It is defined as a major node as well as a strategic position for major shopping centers, recreation, and commercial areas.

This study identified Apolinario Mabini Street and Ramon Magsaysay Avenue. These streets are significant because they enable access into and around Baybay City. The relevanceof 30 de Deciembre Street is highlighted and will be included as it contains school establishments as well as various commercial and residential properties. This study also includes the commercial sections of Andres Bonifacio and Manuel L. Quezon Streets, as well as the market area and government offices along Rizal Boulevard, which are well recognized by all Baybay City residents. It is also the busiest spot during the day and night as it's packed with people and businesses.

Significance of the study

The findings of this study could benefit and educate the parties involved in Baybay's decision-making procedures by deciding which elements are most important and which couldbe overlooked. This could also imply adjustments to traffic restrictions and urban design, as well as making better use of existing amenities. This study could serve as a reference for Baybay and other localities interested in establishing a responsive urban design, as well as to bring home firsthand information and valuable thoughts about walkability.

Lastly, and perhaps most crucially, this research will add to the body of knowledge in urban design for academics, urban & economic planners, and the general public. Consequently, it is anticipated that this study would serve as a platform for prospective scholars to explore and assess the physical features of walkability mainly for marginalized transport users (i.e., pedestrians and cyclists) in future research.

Problem statement

Although the City of Baybay is undergoing development in motorization and urbanization in recent years, there is a lack of research considering the factors affecting pedestrians' likelihood to walk. The purpose of this paper is to identify the factors affecting the likelihood to walk from the viewpoint of the pedestrians of Baybay City. It is intended to discover whether pedestrians' conception of factors affecting walkability complies with the factors identified by the authors regarding the literature review.

Definition of terms

1. Walking - the condition of a surface for one going on foot (https://www.merriam- webster.com)
2. Walkability –is associated with the qualities of the walking area based on an individual's ability and reaction which are influenced by the psychological and perception of the physical features (Ewing et.al, 2006).
3. Pedestrian(s) - a person who is walking, especially in a town or city, rather than traveling in a vehicle (www.collinsdictionary.com).

4. Average Daily Traffic - the volume of traffic passing a point or segment of a highway,in both directions, during a period, divided by the number of days in the period and factored to represent an estimate of traffic volume for an average day of the year (www.lawinsider.com).

REVIEW OF RELATED LITERATURE

Walking in developing cities

Walking promotes equitable access to opportunities, particularly for our society's most vulnerable transport users, such as women, children, and the elderly (Borst et al., 2009). Walking, unfortunately, has remained devalued in current transportation planning and policy development (Litman, 2017; Newman & Kenworthy, 1999; Shoup, 2010), particularly across several Asian developing cities. Although pedestrians constitute 40–60% of modal shares (Leather et al., 2011), pedestrians and their demands have remained the last concern of the public and private sectors, particularly in developing countries. This plain disregard towards non-motorized transport users is also manifested in the inadequate provision of good quality pedestrian facilities, the limited funding allocation for pedestrian infrastructures, and transportplanning and policies that fundamentally cater towards private car drivers (Newman & Kenworthy,1999).

Factors determining walking in urban areas

An and Chen (2007) found that the nonmotorized mode choice was strongly influenced by the factors of employment density, household income, and average sidewalk length. Using the logit model, Plaut (2005) found that higher household income and housing prices were correlated with a lower likelihood to walk or bicycle. As to the other sociodemographic factors(e.g., gender, age, and car ownership), similar empirical studies were conducted (Nurul Habib et al., 2014; An & Chen, 2007; Hunt & Abraham, 2007)

With regards to the influence of the built environment, there is a wide consensus aboutthe fact that the factors of density, diversity, and mixed land use have significant influences onthe travel modes of walking and cycling (Cervero & Duncan, 2003; Lu et al. 2017, Khan et al,

2014). Environmental factors are increasingly recognized as having a crucial influence on walking in neighborhood environments (Lu et al. 2017)

The understanding of individual attitudes in influencing the likelihood to walk has beenoverlooked in travel behavior research due to methodological issues in assessing personal perspectives. However, academics have come to recognize this gap, and a handful of previous empirical studies have included attitudinal elements in their travel behavior analyses. (Cameña& Castro, 2016; Cao, 2009; Ettema & Nieuwenhuis, 2017; Chan et al., 2021; Frank et al. 2007;Joh et al. 2008; Van der Vlugt et al., 2022). With respect to walking behavior, some have suggested that attitudinal factors may be a stronger determinant of walking than built environment factors (Handy et al., 2005).

Pedestrian safety is by far the most well-understood and well-established factor of walkability. Walking and cycling have become difficult, uncomfortable, and dangerous in mostcities due to transportation and land-use restrictions. Environments that encourage fast and efficient vehicle movement are neither enjoyable, safe, nor interesting to pedestrians and cyclists (Southworth, 2005). Not surprising, there is a likelihood of injury or death for pedestrians or cyclists. In Metro Manila alone, pedestrians are the "most vulnerable road users,"with 117 deaths due to road collisions in 2019, according to a report by the Metropolitan Manila Development Authority (MMDA). People who are aware of safe and convenient walking places are significantly more likely to walk (41.5 %) than those who are not (27.4 %) (Powell et al. 2003). Many studies have been conducted to evaluate pedestrian/automobile accidents and their causes. Safety guidelines and design manuals have been produced and are extensively used (Huang et al. 2000; Ragland et al. 2003; Staunton et al. 2003; Zegeer et al. 2004).

Regarding safety, the daily trip to school is extremely challenging. The number of children and adolescents walking or cycling to school has dropped by 40% in the last 20 years

(Killingsworth & Lamming 2001). Parental fear for their children's safety, particularly from traffic, has been cited as a primary reason.

METHODOLOGY

Hypotheses

The specific objective of this study is (i) to investigate the relationship between the likelihood to walk and other variables (i.e., sociodemographic data, physical environment, location, and attitudinal beliefs),(ii) to identify determinants that influence pedestrians' likelihood to walk, and (iii) to discover what factors deter pedestrians from walking. In the scope of the investigation, the following hypotheses were developed:

The first null hypothesis ($H_0$1) is that there is no significant correlation between all sociodemographic data of the participants and the likelihood to walk. The first alternate hypothesis (H_a1) is that there is at least one significant correlation between all sociodemographic data of the participants and the likelihood to walk.

The second null hypothesis (H_o2) is that there is no significant influence between each outcome variable and any of its predictors. The second alternate hypothesis (H_a3) is that at leastone predictor has a significant influence ($\beta_i \neq 0$).

Conceptual framework

Various factors may have influenced the likelihood of walking, including personal, social, and physical environmental factors (Gomes et al., 2011; Joh et al, 2012; Liao et al., 2015). Based on the socioecological theory (McLeroy et al., 1988) and previous pieces of literature, a conceptual framework is proposed for this study (see figure. 2). Personal, social, and physical contextual factors, among others, may have influenced the possibility of walking. A conceptual framework for this study is proposed (see figure. 3) based on socio-ecological theory (McLeroy et al., 1988). Personal factors include sociodemographic variables (such as age, gender, educational attainment, marital status, and private vehicle

ownership in the household) and the pedestrian's attitudes. Influences from the environment (such as the availability of pedestrian amenities) as well as other individuals are examples of social factors. Physical and environmental elements such as walkability and street safety are examples of physical environmental factors. The distance to the desired destination, sidewalk quality, overall walking atmosphere (such as cleanliness, tree shade, and visual quality), physical impediments (such as highways and major roadways), and land use conditions can all be usedto assess walkability.

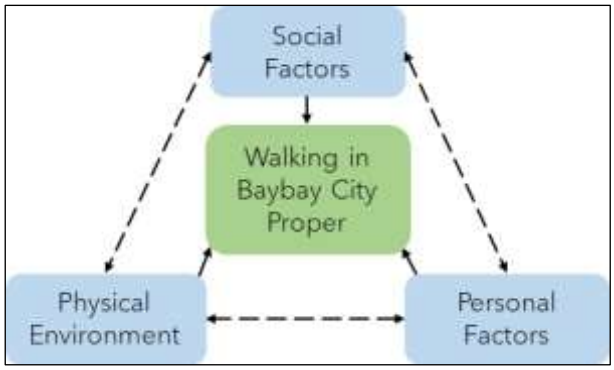

Figure 2: Conceptual framework on people's determinants of walking

Research Design

A questionnaire was used in obtaining quantitative measurements for this study. It was based on existing questionnaires used in various pedestrian surveys, such as the Neighborhood Environment Walkability Scale (NEWS) (Cerin et al., 2009; Cerin, et al., 2006), The questions were then modified and organized as per the parameters for assessing determinants on walkability and was translated into Cebuano, the local language of Baybay city. The localizedquestionnaire was pre-tested for comprehensibility.

The survey questionnaire was divided into two (2) parts. The first part concentrated ongathering respondents' sociodemographic data. The questions include the variables being evaluated (age, gender, income, occupational status). As for the income brackets, it was based on income class profiling done by Albert et al. (2018) The second part contains questions specific to walking. This part included questions on psychological factors, subjective rating of local physical conditions, and likelihood to walk, formulated with Likert-type questions set ona 5-point scale.

Respondents and Data Sampling

The in-situ interviews ensured that the respondents' subjective observations were collected and that their perceptions while moving are properly considered in the findings. The respondents may or may not live in the city center, but rather use it for work, study, shopping,and recreation purposes.

The researchers identified the Tacloban-Baybay road's AADT for 2020 as the foundation for the study's target population. Tacloban-Baybay rd has an AADT of 6,529, according to DPWH data. 114 street users were interviewed in a convenient random sampling.

The survey was held from 1:00 p.m. to 6:30 p.m. on June 5-9, 2022. It included at leastone weekend to accommodate respondents who are busy on weekdays. The questionnaire was distributed and gathered on the streets of Baybay City (Table 1).

Table 1: Survey location and its land-use characteristics

SURVEY LOCATION	LAND-USE CHARACTERISTICS
Apolinario Mabini Street	Presence of a church and a park close, as well as a residential area.
Ramon Magsaysay Avenue	Presence of commercial establishments
30 de Deciembre Street	Presence of commercial and school establishments with a department store (i.e., J&F Department Store) along the corner of 30 de Deciembre St. and E.Jacinto St.
Andres Bonifacio Street	Mix use of residential, commercial, and school establishments
Manuel L. Quezon Street	A mix of commercial establishments and residential areas
Rizal Boulevard	Presence of a public market, public terminal, and a shopping center (i.e., Metro Baybay), with commercial establishments

Data Analysis

Then text data was codified in Excel to analyze with Jamovi software. Jamovi is a freeand open statistics package, which is easy to use, and designed to be familiar to users of SPSSsoftware.

Tests for associations and relationships used Pearson's r-test of correlation. It was used to measure the strength of a relationship between two variables. Only after a relationship or association is established, multiple linear regression was used to come up with models and a list of predictor variables. The equation for Pearson's r-test of correlation is as follows:

Tests for associations and relationships used either independent samples t-tests or the Pearson's r test of correlation, depending on the level of measurement of the variables. Once the relationship or association has been established, multiple linear regression was used to come up with models and the list of predictor variables.

$$r = \frac{\sum(\text{xi} - \bar{\text{x}})(\text{yi} - \bar{\text{y}})}{\sqrt{\sum(xi - \bar{\text{x}})\ (\text{yi} - \bar{\text{y}}}}$$

The models for predicting variables that directly influence pedestrians' likelihood to walk have been established using multiple linear regression analysis. The equation for multiple linear regression is as follows:

$$y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_p x_p + e$$

RESULTS AND DISCUSSION

Demographic Profile

Respondents are almost equally distributed in terms of gender. The

mean age is 20 years old, most have finished high school, and are students. The majority own private vehicles (combined private cars and motorcycles). Table 2 shows the respondents' profiles.

Table 2: Profile of respondents

Gender		***Household Income***	
Males	45 (39.47%)	< PHP 9,100	47 (41.23%)
Females	69 (60.53%)	PHP 9,100 - PHP 36,400	40 (35.09%)
		PHP 36,400 - PHP 63,700	16 (14.04%)
Age	Mean: 20.35	PHP 63,700 - PHP 109,200	2 (1.75%)
10-17	53 (46.49%)	PHP 109,200 - PHP 182,000	6 (5.26%)
18-25	43 (37.72%)	>PHP 182,000	3 (2.63%)
26-33	7 (6.14%)		
34-41	5 (4.39%)	***Highest Educational Attainment***	
42-49	4 (3.51%)	Elementary graduate	6 (5.26%)
50-57	2 (1.75%)	Some high school attainment	37 (32.46%)
		Senior high school graduate or equivalent	43 (37.72%)
Occupational Status		Some college attainment	9 (7.89%)
Employed	19 (16.67%)	College graduate	14 (12.80%)
Self-employed	1 (0.87%)	Postgraduate level	5 (4.39%)
Unemployed	0		
Student	94 (82.46%)	***Residence***	
		Within Baybay City center	70 (61.40%)
Civil Status		Outside Baybay City center	44 (38.60%)
Single	100 (87.72%)		
Married	13 (11.41%)	***Owns Private Vehicle?***	
Separated	0	Yes	76 (66.67%)
Widowed	1 (0.87%)	No	38 (33.33%)

Traffic Profile

Private vehicles are the most popular form of transport in Baybay. Figure 3 shows a relatively significant percentage of private car preferences in three of the four stated trip purposes: school or work (42.98%), grocery & shopping (39.47%), and leisure (50.87%).

Walking was preferred by a considerable proportion of respondents (35.08%) for transport associated with exercise and sports, followed by bicycle use (25.92%).

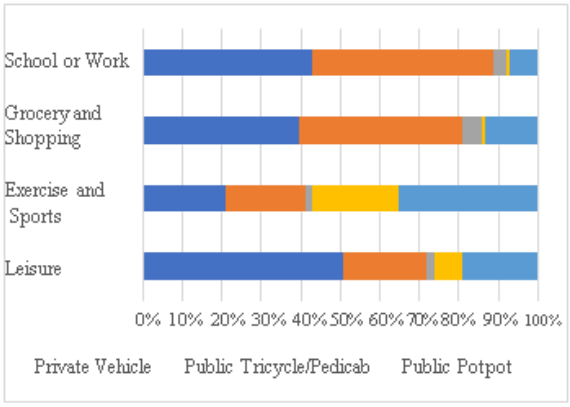

Figure 3: Activities and corresponding transport modes preferred

Correlates of walking

Four (4) walking likelihoods were examined for correlation and relationship with sociodemographic characteristics (age, gender, income, occupational status, educational attainment, residence, and private vehicle ownership), psychological factors, and physical environment factors. The likelihood of walking was assessed using a 5-point Likert scale (1 =strongly disagree – 5 = strongly agree).

Results are shown in Table 3 for the sociodemographic correlates of walking. Most of the sociodemographic factors failed to show any significant correlation in any of the four (4) likelihoods to walk. However, results show that gender has a significant difference between the means of gender groups with the likelihood to walk in good weather. The results also show that there is a significant relationship between occupational status and the likelihood to walk during busy hours with high traffic volume. The occupational group results may well be attributed to latent features. The prospect of long-distance commutes to work seemed more serious to some. Lower levels of education, on the other hand, are more likely to be unemployed but have much lower incomes, thus the thought that walking can provide them with the ability to become active tends to be a more essential issue for them. Since there is at least one significant correlation, the first null hypothesis can be rejected ($H_0$1).

Table 3: Sociodemographic correlates of likelihood to walk

Sociodemographic factors \ Likelihood to walk		Alone at Night	If Sidewalksare well-maintained	In a good weather	On busy hours withhigh trafficvolume
Age	r	-0.161	-0.001	-0.022	0.074
	p-value	0.087	0.993	0.818	0.432
	N	114	114	114	114
Gender	t	-1.590	0.093	**2.384**	-1.016
	df	112	112	**112**	112
	p	0.115	0.327	**0.019**	0.312
OccupationalStatus	r	-0.013	0.078	0.042	**0.193***
	p-value	0.890	0.409	0.655	**0.039**
	N	114	114	114	**114**
Civil Status	r	-0.090	-0.023	0.059	0.043
	p-value	0.343	0.808	0.532	0.653
	N	114	114	114	114
Educational Attainment	r	-0.078	-0.098	-0.117	0.100
	p-value	0.411	0.300	0.215	0.288
	N	114	114	114	114
Residence	t	1.089	0.116	0.008	0.561
	df	112	112	112	112
	p	0.278	0.908	0.994	0.576
Household Monthly Income	r	0.008	-0.021	-0.082	-0.107
	p-value	0.930	0.828	0.384	0.258
	N	114	114	114	114
HouseholdVehicle Ownership	t	1.22	-0.314	-0.078	0.545
	df	112	112	112	112
	p	0.224	0.754	0.938	0.587

Note: * significant at p< 0.05, ******* significant at p< 0.01, ******* significant at p<0.001

The physical environment correlates of walking are shown in Table 4. The majority ofthe variables show a positive correlation, except for one: the belief that "the distance to school/work is walkable" and the likelihood to walk alone at night (coefficient = -0.239, p-value = 0.011), implying that the less walkable the distance from residence to school/work, the

less likely they are to walk alone at night. This inverse correlation can be related to theindividual's perception of walking distance that can be walked practically at night

Table 4: Physical environment correlates of likelihood to walk

Physical environment factors \ Likelihood to walk		Alone atNight	If Sidewalks are well-maintained	In a goodweather	On busy hours with high traffic volume
Has a sufficientnumber of sidewalks	r	0.109	0.159	0.042	0099
	p-value	0.250	0.092	0.655	0.168
	N	114	114	114	114
Has well-shadedsidewalks	r	**0.98***	0.130	0.072	0.168
	p-value	**0.035**	0.167	0.450	0.073
	N	**114**	114	114	114
Has easily-accessible pedestrian crossings	r	0.134	**0.255****	**0.202***	0.173
	p-value	0.154	**0.006**	**0.031**	0.66
	N	114	**114**	**114**	114
The destinations are within walking distance.	r	-0.022	**0.217***	0.123	0.043
	p-value	0.814	**0.021**	0.191	0.652
	N	114	**114**	114	114
The distance frommy residence to work/school is walkable	r	**-0.239***	0.081	0.053	**0.326*****
	p-value	**0.011**	0.390	0.576	**<0.001**
	N	**114**	114	114	**114**
The streets are well-lit at night.	r	0.228	0.172	0.110	**0.223***
	p-value	0.015	0.067	0.245	**0.017**
	N	114	114	114	**114**
Has well- maintainedsidewalks	r	0.166	**0.267****	0.110	0.067
	p-value	0.078	**0.004**	0.245	0.476
	N	114	**114**	114	114

Note: * significant at p< 0.05, **** significant at p< 0.01, **** significant at p<0.001

Table 5 shows the correlations between the four (4) variables for walking likelihood and the nine (9) psychological factors on walking. All significant correlations were positive, however, the majority showed medium strength of relationship, except for the belief that walking more provides physical fitness and the likelihood to walk in good weather, which showed a high strength of relationship with r=0.248. The conditions of likelihood to walk during busy hours with a high volume of traffic showed high significance between "the streets in Baybay are crime-free" (r = 0.341) and "Walking on the streets of Baybay is safe" (r = 0.336).

Table 5: Physical environment correlates of likelihood to walk

Likelihood to walk / Psychologicalfactors		Alone atnight	If Sidewalks are well-maintained	In a good weather	On busy hours withhigh traffic volume
I would rather walk than ride a vehiclewhen in Baybay citycenter	r	0.057	0.032	0.092	0.183
	p-value	0.549	0.737	0.333	0.051
	N	114	114	114	114
I will walk regardless of the weather.	r	**0.198***	0.034	0.135	**0.230***
	p-value	**0.035**	0.721	0.152	**0.014**
	N	**114**	114	114	**114**
I am the kind of person who likes to walk	r	**0.276****	0.064	0.0089	0.075
	p-value	**0.003**	0.500	0.347	0.426
	N	**114**	114	114	114
Walking is the quickest way to travel for short trips	r	0.109	0.153	0.051	**0.276****
	p-value	0.249	0.105	0.589	**0.003**
	N	114	114	114	**114**
Walking in the citycenter is fun	r	0.066	0.102	**0.213***	0.122
	p-value	0.482	0.282	**0.023**	0.197
	N	114	114	**114**	114
I do not think I amfit enough to walk	r	-0.072	0.062	-0.053	0.141
	p-value	0.446	0.512	0.577	0.135
	N	114	114	114	114
I should walk morefor physical fitness	r	-0.090	**0.217***	**0.248****	0.103
	p-value	0.341	**0.021**	**0.008**	0.277
	N	114	**114**	**114**	114
The streets inBaybay are crime-free	r	0.161	0.164	0.134	**0.341*****
	p-value	0.087	0.081	0.156	**< 0.001**
	N	114	114	114	**114**
Walking on the streets of Baybay is safe	r	**0.301****	0.072	0.091	**0.336*****
	p-value	**0.001**	0.445	0.336	**< 0.001**
	N	**114**	114	114	**114**

Note: * significant at p< 0.05, **** significant at p< 0.01, **** significant at p<0.001

Models for likelihood to walk

Multiple linear regression analysis was used to determine the models for predicting variables that directly affect the individual's likelihood to walk. The resulting models with the highest value of Adjusted R-squared were selected.

Predictor and Outcome Variables of Walking

The multiple linear regression analysis for the likelihood to walk includes twenty-four (24) factors. Table 6 shows the four (4) outcome variables that represent the various contexts that one may meet while walking. Table 7 shows the resulting models along with the associatedpredictor variables.

Table 6: Four outcome variables for the likelihood to walk

Outcome Variables for Likelihood to Walk	Code
1. Likelihood to walk at night	OV1
2. Likelihood to walk if sidewalks are well-maintained	OV2
3. Likelihood to walk in a good weather	OV3
4. Likelihood to walk during busy hours with high traffic volume	OV4

The model for OV1 can account for 26.4% variability with the attitudinal belief that thestreets in Baybay city center are crime-free (β coefficient of 0.292), as the strongest predictor. Simply saying, individuals who believe that those streets that are crime-free are safest to walk at night increase the likelihood of them using this model. The model for OV2 can account for11.9% variability with the physical environmental factor "has well-maintained sidewalks" (β coefficient of 0.247) as the strongest predictor. Simply saying, individuals who believe that streets in Baybay city center have well-maintained sidewalks would easily choose to walk than use other modes. This implies that physical environmental factors that allow individuals to conveniently walk to their destinations, such as connectivity, can positively influence an individual's decision to walk. Model for OV3 resulted in an Adjusted R squared value (0.119)with six predictors included. The Adjusted R squared value tells us that this model can accountfor about 11.9% of the variability in 0V3 (the changes in 0V3 can be explained/caused by about 11.9% of the model). The psychological statement that walking can contribute to one's overall physical fitness appears to have the strongest influence. The negative coefficient of gender, forexample, means that the males (the reference value/group) would likely choose to walk more, in good weather, than females. Similarly, factor such as educational attainment bearing negative coefficients means that when these factors are lower, the likelihood to walk under the condition of OV-3 becomes higher. All six variables added statistically significantly to the prediction with the p-values < 0.01. The model for OV4 can account for 26.4% variability withthe sociodemographic factor "occupational status" (β coefficient of 0.286) as the strongest predictor. Simply saying, individuals who believe that walking allows them to quickly reach their destinations would easily choose to walk than use other modes. This implies that physical environmental factors that allow individuals to conveniently walk to their destinations, such as connectivity, can positively influence an individual's decision to walk. Gender (β coefficient of 0.286) shows to be the strongest influence in the model for OV4 (adjusted R squared = 0.264), It suggests that the males (the reference value/group) would likely choose to walk more, during busy hours with high traffic, than females. Appendix B contains the results of models on the determinants of the likelihood to walk.

Factors that Deter Walking and Bicycling

The main deterrent to walking is motor vehicles traveling at high speed, followed by public health concerns like problems with air pollution coming from vehicles, and garbage litter on sidewalks.

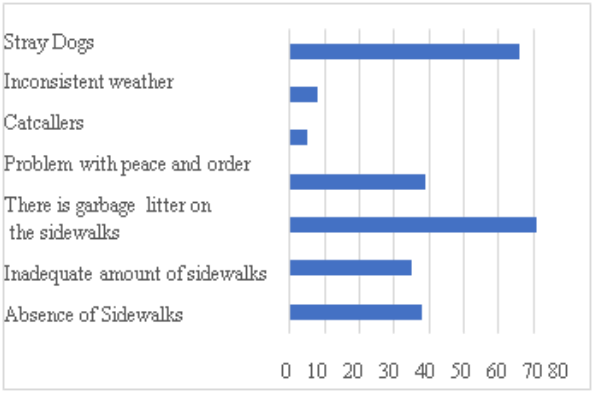

Figure 4: Deterrents of walking

Few people listed "inconsistent weather" and "catcallers" as reasons for not walking. This response was taken from the "others" category of the question on walking deterrents, which contained items that were not on the initial list of choices. Considering the weather is a naturally occurring phenomenon, the most practical way to cope with this is to enhance the city's urban tree canopy. As trees flourish, they help to slow climate change by taking carbon dioxide, storing carbon in the trees and soil, and releasing oxygen into the atmosphere. This would not only tackle the urban heat problem but will also improve the city's aesthetics and air quality. According to Hartig et al. (2014), natural features may lead people to favor walking or cycling over other transport modes by making routes to destinations more attractive. The practical relevance of bringing forth the issue of catcallers as a security & safety concern for a pedestrian is worth looking into. Although men are victims, catcalling disproportionately affects women. Even though our culture values strong, influential women, catcalling still is a problem in the Philippines. Fortunately, there is the Safe Spaces Act of 2019, which penalizes gender-based sexual harassment in public places. The Safe Spaces Act further enhances the 1995 Anti-Sexual Harassment Act.

Summary

This study identified the factors that influence the likelihood of walking among pedestrians in Baybay City, Leyte, Philippines, a first-class component of around 111,000 inhabitants. The number of the target population was based on the Annual Average Daily traffic record provided by the DPWH. Data surveyed from 114 respondents using a 23-item questionnaire were analyzed using independent sample T-tests and Pearson's r-test of correlation. Results showed significant relationships between psychological attributes and the likelihood to walk. Sociodemographic attributes (gender occupational status) showed a significant relationship. Males tend to walk in good weather. Multiple linear regression resultedin models showing various factors of walking.

Conclusion

The predictors of the likelihood of walking offer individuals a favorable attitude toward the sustainability of this mode of transport. Favorable impressions like "walking in Baybay City is safe" contained in the models are advantageous for groups intending to create a positive perception of walking. Other than advocacy,

improving people's capacities to thrive as dynamic individuals remains essential if walking trends are to improve significantly. This suggests that programs and initiatives must be centered on maintaining a good perception of walking, investing in infrastructure and development that is inclusive of walking, and being sensitive to the needs of pedestrians from all sociodemographic backgrounds.

Recommendations

Baybay City must be able to establish actions to minimize the impact of deterrent factors while also investing more in improving current amenities and building in underdeveloped areas to enable comfortable pedestrian trips. Common locations and critical facilities such as basic schools and local stores servicing necessities. be within walking distance of most properties. Expanding the current sidewalks, traffic decongestion, and removing irresponsibly parked vehicles could be several strategies that are worth looking into, but to do that, the City must also invest in improving its traffic database, especially including pedestrians.

Further studies incorporating and comparing the health of pedestrians, and costs of using different modes, including fuel costs, should be conducted to determine if health attributes and cost are also a factor in one's likelihood to walk.

Since this study only measures the subjective component of factors influencing walking,an objective study must also be done to come up with a more comprehensive analysis of the influencing factors. In addition, it is also important to determine the threshold distances that people walk for its practical significance in locating basic facilities.

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