

Associations Between Time Spent Traveling in Motor Vehicles and Physical Activity Patterns in Colombian Adults from Urban Areas



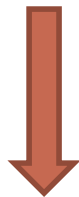
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PA – TSTMV in Colombia

Physical Activity (PA)

Physical Activity is important!

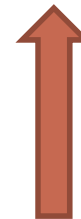
- 53% of Colombians meet PA recommendations.
- 63% as a mean of transport.



Time Spent Traveling in Motor Vehicles (TSTMV)

Sedentary behaviors affect adversely health.

- 30% of Colombians spend 150 minutes or more traveling in motor vehicles per day.
- Car sales has increased 54% by 2011 compared to 2010.



WHAT WE KNOW

- Those reporting low PA levels are more likely to spend time sitting compared to those reporting high PA levels.
- Car ownership and its use correlate consistently with lower levels of walking and cycling.

Is this the case for Colombian adults?

- Latin American countries:
- Different public mass transit systems.
 - Low rates of private motor vehicle ownership.
 - Particular social and economic dynamics.
 - Unique urbanization patterns.

OBJECTIVE

To assess the association between TSTMV and PA patterns such as walking and bicycling for transportation and Leisure Time Physical Activity (LTPA) among Colombian adults living in urban areas.



METHODS

- Cross-sectional study.
- A secondary data analysis of the 2010 National Nutrition Survey of Colombia (ENSIN, 2010).
- Participants: 7,313 adults aged 18 to 64 years from urban areas (i.e. more than 82,000 inhabitants).
- We excluded from the analysis participants with disabilities.

METHODS

- TSTMV and PA levels were measured by trained personnel through a culturally validated IPAQ long form version survey.
- PA levels assessed by survey included only the transportation and LTPA domains.
- TSTMV inquired about the minutes per day traveling in buses, cars or motorcycles.
- Urbanization level and socio-demographics characteristics were included as covariates.
- We conducted logistic regression analysis and created models stratifying by selected variables using STATA 12.

RESULTS

Variables	Frequency	%
Gender		
Male	3034	41.5
Female	4,279	58.5
Age groups in years		
18 – 29	2,469	33.7
30 – 49	3,282	44.9
50 – 64	1,562	21.4
Urbanization level		
82.000 to 288.000 inhabitants	2,595	35.5
388.000 to 1.027.000 inhabitants	1,858	25.4
1.190.000 to 3.432.000 inhabitants	1,490	20.4
7.760.000 inhabitants	1,370	18.7
Education level		
Elementary school complete or less	1,843	25.3
Secondary school incomplete	3,456	47.5
Secondary school complete and over	1,982	27.2
Socio Economic Position		
Low	2,177	29.8
Middle low	1,793	24.5
Middle upper	3,343	45.7
Occupation		
Working	4,530	61.9
Searching for a job	295	4.0
Studying	541	7.4
Housewife	1,774	24.3
Retired	173	2.4

RESULTS

Table 1. Prevalence of TSTMV per day among 7313 Colombian adults aged 18-64 years by selected sociodemographic characteristics. Data from ENSIN 2010.

TSTMV	Zero minutes % (95% CI)	>Zero and less 60 minutes % (95% CI)	>60 and less 120 minutes % (95% CI)	120 minutes and over % (95% CI)
All participants	17.7 (16.6-18.8)	29.7 (28.4-30.9)	25.0 (23.8-26.2)	27.6 (26.2-28.9)

For the highest category of TSTMV (120 minutes and over), the prevalence was higher in the following groups:

Males - 34%

Aged 30 to 49 years - 30%

Highest urbanization level - 43%

Secondary education or more - 34%

Middle upper SEP - 31%

Working - 31.4%

RESULTS

Table 2. Prevalence of meeting PA guidelines by domains among 7313 Colombian adults aged 18-64 years by selected sociodemographic characteristics. Data from ENSIN 2010.

TSTMV	Walking for transportation at least 150 minutes		Bicycling for transportation at least 150 minutes		Meeting leisure time physical activity guidelines	
Zero minutes	42.1 (38.9-45.4)		12.3 (10.4-14.4)		17.0 (14.8-19.3)	
>Zero and less than 60 minutes	28.2 (26.2-30.3)	<0.001	2.5 (1.9-3.2)	<0.001	19.1 (17.3-20.9)	0.487
>60 and less than 120 minutes	30.5 (28.1-33.0)		2.5 (1.7-3.4)		18.1 (16.1-20.2)	
120 and more	38.5 (35.9-41.2)		3.1 (2.2-4.2)		19.1 (17.0-21.3)	

RESULTS

Table 3. Binary logistic regression analysis between TSTMV and meeting PA guidelines by PA domains among Colombian adults. Data from ENSIN 2010. N= 7313

TSTMV	Walking for transportation at least 150 minutes		Bicycling for transportation at least 150 minutes		Meeting leisure time physical activity guidelines	
	Adjusted POR (95% CI)	<i>p trend</i>	Adjusted POR (95% CI)	<i>p trend</i>	Adjusted POR (95% CI)	<i>p trend</i>
Zero minutes	Ref	0.090	Ref	<0.001	Ref	0.960
>Zero and less than 60 minutes	0.57 (0.48-0.67)		0.18 (0.13-0.26)		1.09 (0.88-1.34)	
>60 and less than 120 minutes	0.60 (0.50-0.72)		0.17 (0.11-0.26)		1.01 (0.81-1.28)	
120 minutes and over	0.76 (0.64-0.91)		0.17 (0.11-0.26)		1.03 (0.83-1.29)	



Significant *p trend* for gender and urbanization level.
Males (*p trend* 0,001) and low urbanization level (*p trend* 0,003).

No significant trend for gender and occupation.
Females (*p trend* 0.468) and not working (*p trend* 0.456).

Recap!

- Once adjusted for potential covariates TSTMV is negatively related with active transportation and no significant associations were found with LTPA.
- The magnitudes of the associations are notoriously higher in the non-stratified bicycling model (i.e., general population) than those found in the walking for transportation.
- Significant trend associations were found in the walking model when stratifying by gender (being male) and urbanization level (reside in urban setting: 82.000 to 1.027.000 inhabitants).
- Significant trend associations were lost in the bicycling model when stratifying by gender (being female) and occupation (no working/studying).

DISCUSSION

Our findings are similar to those reported in other studies (i.e., TSTMV – PA adverse association).

- Walking - Short commute, gender role (social behavioral norms) and self-report data.
- Biking - Lack of articulated public mass transit systems, gender role (social behavioral norms).
- LTPA – different correlates and determinants.

PRACTICE AND POLICY IMPLICATIONS

1. Promote active transportation.
2. Discourage the use of motor vehicles.
3. Decrease commuting time using public transportation.
4. Integrated public mass transit systems.
5. Increase social recognition of pedestrians and bicyclists.
6. Strategies to improve safety conditions and reduce gender disparities.

THANK YOU

Acknowledge my team!

Luis Fernando Gomez

Diana Parra

Andrew Nylander

Carlos Mario Arango

Christina Mallarino

Alberto Flórez