

Hopeful Actions: Taking Steps to Reduce the Effect of Transportation on Climate Change

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Introduction

“To limit global warming, strong, rapid, and sustained reductions in CO₂, methane, and other greenhouse gases are necessary” (the Intergovernmental Panel on Climate Change). In the United States, transportation accounts for 29% of greenhouse gas emissions, with cars and planes emitting more than trains and buses. In particular, flying emits the most greenhouse gases per passenger mile, both because it takes a lot of fuel to lift planes into the air and because planes emit nitrous oxides and water vapor at high altitude. Within academia, in-person conferences are one of the largest contributors; often researchers travel hundreds of miles and sometimes thousands.

Method

This study examined how frequently people are taking actions to limit the impact of transportation on climate change. We recruited 500 US Mturk workers (212 female, 285 male, 3 non-binary) using CloudResearch’s Approved Participants list. They ranged in age from 19 – 76 (mean 39.7, SD 11.7). 415 identified as Caucasian / White; 43 as African American / Black. Participants completed the Climate Change Action Inventory and the Climate Change Hope Scale.

Results

Frequency of Actions

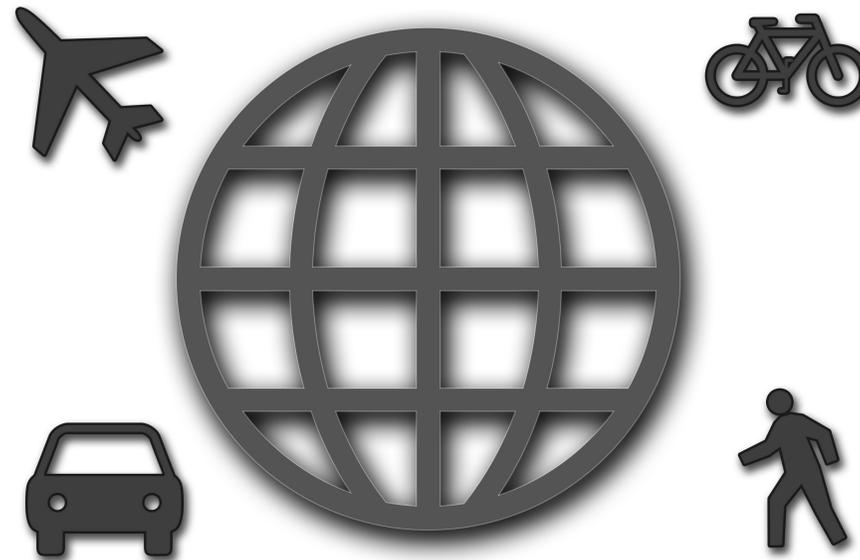
Action	Several times a week	At least once a month	Less than once a month
Work (or attend school) from home	50.23%	16.90%	32.87%
Combine trips to reduce mileage	28.0%	53.94%	18.06%
Use human-powered transport	27.31%	26.62%	46.06%
Attend meetings / classes using computers or phones	26.62%	32.64%	40.74%
Visit friends / family using computers or phones	25.0%	36.57%	38.42%
Use an electric / fuel efficient car	17.36%	6.94%	75.69%
Use public transit	10.41%	11.81%	77.78%
Carpool	10.19%	17.59%	72.22%
Encourage others to use climate-friendly transportation options	7.88%	21.06%	71.06%
Problem-solve how to reduce the impact of transportation on climate change	6.95%	15.97%	77.08%
Give time or money to organizations working to reduce the impact of transportation on climate change	5.32%	6.72%	87.96%

Almost all of these actions had significant correlations with “I believe people will be able to solve problems caused by climate change.” The highest correlations were for encouraging others and giving to organizations.

Discussion

Taking proactive steps to reduce climate change may increase hope; conversely, feeling hopeful may facilitate action. To increase hopefulness, media can focus on what is being done and what else can be done. In addition to the actions above, researchers can:

- ◆ Attend virtual conferences
- ◆ Attend local conferences, instead of distant ones
- ◆ Carpool or take a train or bus, instead of flying
- ◆ Send a few representatives from your lab, instead of everyone

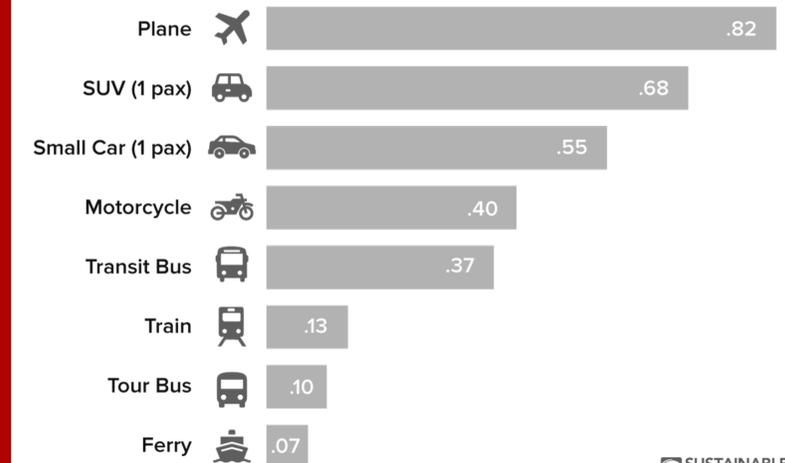


Hope is correlated with taking action to reduce the impact of transportation on climate change

UNLV

Emissions by Mode of Transport

pounds of CO₂e emitted per passenger per mile



SUSTAINABLE TRAVEL INTERNATIONAL

These are averages based on 2020 UK conversion factors. Values will vary based on distance traveled, vehicle model, occupancy rate, flight class, and various other factors.

Correlations

Spearman's rho	Correlation Coefficient	CCHS1#
CCAI1. Attend meetings / classes using computers or phones (instead of in person)	.184**	
	Sig. (2-tailed)	<.001
	N	500
CCAI2. Visit friends / family using computers or phones (instead of in person)	.105*	
	Sig. (2-tailed)	.019
	N	500
CCAI3. Work (or attend school) from home	.102*	
	Sig. (2-tailed)	.022
	N	500
CCAI4. Use human-powered transport (walk, bicycle, scooter, etc.)	.122**	
	Sig. (2-tailed)	.006
	N	500
CCAI5. Use public transit (trains, buses, subways, etc.)	.146**	
	Sig. (2-tailed)	.001
	N	500
CCAI6. Carpool	.080	
	Sig. (2-tailed)	.076
	N	500
CCAI7. Use an electric / fuel efficient car	.067	
	Sig. (2-tailed)	.137
	N	500
CCAI8. Combine trips to reduce mileage (e.g., shop on the way home)	.075	
	Sig. (2-tailed)	.094
	N	500
CCAI9. Encourage others to use climate-friendly transportation options	.220**	
	Sig. (2-tailed)	<.001
	N	500
CCAI10. Problem solve how to reduce the impact of transportation on climate change	.180**	
	Sig. (2-tailed)	<.001
	N	500
CCAI11. Give time or money to organizations working to reduce the impact of transportation on climate change	.206**	
	Sig. (2-tailed)	<.001
	N	500

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).