How COVID-19 changed mobility: A life-oriented approach to travel behavior change in Flanders, Belgium

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Abstract: This research regards the COVID-19 pandemic as a major life event with the ability to affect daily activity-travel behavior, and investigates if specific activity participation (work/study, shopping, social contact, free time) is associated with different travel modes (walk, cycle, car, public transportation), with attention paid to residential neighborhood using survey data (n=854) in Flanders, Belgium. Through mean-comparison tests and regression analyses, evidence was found of (1) compensation for changed working/studying time with walking time, (2) compensation for changed social contact with cycling, and (3) similarly affected travel behavior regardless of residential neighborhood, though suburban residents may have more mode-resilience and less reliance on public transportation. Further evidence indicate that those working/studying may have taken

advantage of decreased traffic and congestion with an increase in car and public transportation use and that older respondents may be more likely to hold flexible, teleworkable jobs and treat the pandemic with greater caution. Some travel behavior changes are expected to persist post-pandemic, therefore understanding which life domains are associated with which travel modes can inform policy aiming to decrease motorized and increase active mode use (e.g. for health or sustainability goals). **Keywords:** Daily travel; travel mode; life domains; urban mobility; pandemic mobility

Introduction

At the time of writing, the COVID-19 pandemic and subsequent lockdown in countries all over the world continues to be an event with obvious implications for travel behavior. In addition to strong governmental regulations (discussed in detail below), caution toward public spaces and disrupted time-use patterns have shaped the destinations and modes used. A reduction in out-of-home activities due to workplace closures or transitions to teleworking, shop closures, park use regulations, and forbidden socialization and amusement opportunities drastically changed both travel behavior and the life domains with which these regulations are associated; some of these changes will likely persist post-pandemic (Abdullah et al. 2020; Bhaduri et al. 2020; Conway et al. 2020; de Haas et al. 2020; Shamshiripour et al. 2020). Though numerous studies have explored the effect of the COVID-19 pandemic on travel behavior, this research is unique in that these changes are investigated through a life-oriented approach by also incorporating change in life domains (work/study, shopping, social activity, free time). Investigation of the effect on life domain change or disruption (i.e. activities being cancelled or organized online) on travel mode (walk, cycle, car, public transport) is important for two main reasons. First, this investigation can help determine whether lockdown stimulates a shift from motorized to active or public to private mode use, and second, whether these shifts are dependent on the life domain with which they are associated. If these behavior shifts are seen, post-pandemic travel behavior can be anticipated, healthy and sustainable mode use can be encouraged, and planning for travel behavior changes as a result of future crises can be improved. It is assumed that the pandemic event, in addition to altering

travel behavior in general, will alter travel behavior in regard to specific life domains.

Belgium experienced its most stringent lockdown regulations during the 18 March – 4 May 2020 time period though a full return to normal movement cannot yet be anticipated at the time of writing. Belgium has a relatively high population density and has recorded a high COVID-19 death rate; therefore, the lockdown restrictions in Belgium were understandably strict compared to many other European countries. Schools, universities, and non-essential stores were closed while all gatherings or meetings were prohibited. Stores that remained open had capacity and distance restrictions (one person per 10 square meters) as well as a maximum time limit duration (30 minutes); these included supermarkets, pharmacies, newsagents, and banks. Teleworking was mandatory for all jobs for which it was possible, though where impossible travel to work was permitted. Stopping in parks was forbidden, though they remained open for movement through (walking or jogging). Movement outside with a maximum of two people was permitted only if the two people lived together. Social distancing of at least 1.5 meters was required in both outside and public inside spaces. Public transportation systems remained operational but were reserved for those without travel alternatives (i.e. physical disability) with the Flanders governmental public transport service from 'De Lijn' (responsible for all urban, suburban, and intercity bus and tram services) reduced by 14% for busses and 10% for trams. Individuals were fined €250 (US $297) for nonadherence and establishments were fined €750 (US $892) with the threat of forced closure if the offence was repeated (Brzozowski 2020; Chini 2020; Chini and Spinks 2020; Hirsch 2020; Hook et al. 2021; Pornschlegel 2020).

By regarding the COVID-19 pandemic as an important life event with the ability to change travel behavior, a life-oriented approach will explore whether changes in activity participation in different life domains affect changes in travel behavior. This research specifically investigates if certain activity participation (work/study, shopping, social contact, free time) is associated with certain travel modes (walk, cycle, car, public transportation) with attention paid to residential neighborhoods through mean-comparison and ordinary least squares regression analyses using an 854-respondent survey in Flanders, Belgium. Certainly this relationship is bidirectional as travel options also have the ability to affect life domains (i.e. public transportation commuting could improve work/study because of added time to prepare, walking could provide more flexible shopping

options in dense city centers), but this research will be conducted from the perspective that life-domain-specific changes due to the strict pandemic measures can cause changes in specific travel modes. A decline in overall travel is expected as a result of the restrictions of the pandemic, though a rise in active mode use could be seen alongside a decrease in car use as out-of-home activities were not available (Hook et al., 2021). Understanding which life domains are associated with which travel modes can be informative to a policy that aims to encourage individuals to switch from motorized modes to active modes (e.g. for health or sustainability). Understanding these changes is of further importance because positive temporary change could last past the pandemic and become normal travel behavior and indeed, there is already evidence that many individuals intend to retain some changes post-pandemic (Conway et al. 2020).

Literature review

COVID-19 pandemic and travel behavior

The COVID-19 pandemic and many subsequent lockdowns around the world have provoked questions regarding travel behavior during the pandemic through which many research outputs can already be accessed. De Vos (2020) suggests that a decrease in out-of-home activities will cause a decrease in overall travel demand, a switch from public to private mode use in trips remains to be seen, and that undirected travel trips (e.g. taking a walk, bicycle ride, or jog) might increase due to their physical and mental-health benefits. In a previous output using this dataset (Hook et al. 2021), compensation for decreased car use with both undirected and active trips during lockdown was observed. De Haas et al. (2020) observed decreases in the number (55%) and the distance of trips (68%), but increases in walking and cycling undirected trips (of which 20% are expected to continue post-pandemic) in the Netherlands. Ding et al. (2020) saw population-level physical activity engagement increase in Australia, the UK, and the US. Regarding commute in India, Pawar et al. (2020) found that the expectation of a switch from public to private modes was not drastically seen (only 5.3%) because commuters lacked private mode availability. Conversely,

regarding trips in general in various (mostly South and South-East Asian) countries, Abdullah et al. (2020) documented a significant shift from public to private and non-motorized modes, however, the anticipated switch from private cars to active modes was not seen. Conway et al. (2020) found that some mode use change will likely persist post-pandemic, that is, public transportation might not reach its pre-pandemic ridership and many plan to walk and cycle more than before. Outputs regarding the implications of the COVID-19 pandemic on travel behavior are constantly being written and published as many countries remain in stages of lockdown at the time of writing. Therefore, it is unfortunately not possible to include all new research outputs on this subject in this literature review.

Life-oriented approach and travel behavior

Travel behavior research has turned away from objective (simplest-trip, trip-chaining, or activity-based) approaches toward more holistic measurements in recent years. The life-oriented approach is suggested as a way to evaluate travel behavior that accounts for the fact that it is inherently connected to life events (employment, marriage, children, retirement) and life choices (Chatterjee et al. 2013; Delbosc and Nakanishi 2017; Scheiner 2006; Zhang and Van Acker 2017). For example, life choices in all domains, such as those related to employment/studying, shopping, social connections, and free time are all interdependent with travel behavior in the short term, the long term, and over the life-course. Consideration of other life domains is important to a more complete understanding of individual travel behavior so that internal (preferences, attitudes, life situation) and external (built environment, workplace changes, global pandemic) factors can be accounted for. The COVID-19 pandemic is an important life event that has the potential to change travel-activity behavior, and, therefore, should be studied from a life-oriented perspective. This study accomplishes this by investigating travel behavior change due to the COVID-19 pandemic and its relation to the work/study, shopping, social activity, and free time life domains.

The work/study life domain is inherently connected to travel behavior through the commute. Commuting makes up approximately 30% of total trips in most western countries (Heinen et al. 2013; McGuckin and Fucci 2018) and is often mandatory and fixed regarding time and location which in turn often fixes modal choice. Though some research (Redmond

and Mokhtarian 2001; Páez and Whalen 2010) argues for the positive utility of the commute (time to clear head, participate in other activities like reading or enjoying scenery, etc.), the commute is often seen as a burden that is chosen if/when compensated by the labor (or housing) market (Morris and Zhou 2018; Stutzer and Frey 2008). The psychological detriment and stress of the commute is well-documented (e.g. Koslowsky et al. 2013) and can influence both travel behavior and the work/study life domain. Though teleworking is seen as a strategy to reduce the detriments of commuting, Silva and Melo (2018) found that teleworking increased car (and more importantly, polluting-mode) use. Similarly, Scheiner (2014) found that entry into the labor market in general increases car use and leaving the labor market reduces public transportation use. The COVID-19 pandemic caused an obvious change in work habits for many and likely also changed travel behavior.

Shopping is a second life domain that is important to travel behavior. Previously, shopping trips were linked to travel behavior by Handy and Clifton (2001) who found that providing local shopping opportunities does not necessarily reduce car use but could increase quality of life by making car-use a choice instead of a necessity. Hagberg and Holmberg (2017) more recently found that distance to store and normal travel patterns are the most important influences on mode choice. Just as the pandemic caused teleworking, it could also increase online shopping, which has been found to impact travel behavior in four ways: substitution (replacing shopping trips with online shopping), complementarity (partake in both, with an increase in total shopping), modification (shopping trips change due to the adoption of online shopping), and neutrality or no change (Shi et al. 2019). Shopping trips and the relationship between travel and shopping are expected to change drastically due to the COVID-19 pandemic as online shopping can compensate when shops are closed or become high-risk infection locations.

Travel behavior research has further found important connections to social activity and free time. Though these are considered two separate life domains, there is much overlap when it comes to travel behavior. For example, activities done during free time are often linked to other people and destinations through identity, social position, norms, and affect (Ettema and Schwanen 2012). Social networks have been found to influence travel itself (e.g. travel companions) and influence activities to which a person must travel (Sharmeen et al. 2014). Ettema et al. (2012) found that talking to other people during trips had a strong positive effect on

satisfaction with public transportation travel. Regarding free time, De Vos (2018) analyzed leisure trips (visiting family/friends, going out for food/drink, visiting nature, participating in sport/cultural activities, or recreational shopping) and found that approximately half of leisure-trips were taken by non-preferred modes (mostly public transportation and least often cycling). Certainly, the restrictions from the COVID-19 lockdown changed the way that individuals socialized as well as the amount of free time available to them and the ways they could use it; their travel behavior is expected to change along with these life domains.

Built environment and travel behavior

Travel mode can be directly affected by the built environment as different residential densities, access to destinations, and walkability affect station or parking access, congestion, travel distance or time traveled (Cervero and Kockelman 1997; Ewing and Cervero 2010; Frank and Pivo 1994; Gordon et al. 1989; Yin et al. 2019). From previous research it is clear that the built environment is an important moderator in the relationship between travel mode choice and life domains and events. Urban mobility culture and multi-mode or active-travel oriented built environments encourage these daily travel behaviors while car-oriented cities encourage monomodal car use (Chatterjee et al. 2013; Delbosc and Nakanishi 2017; Klinger 2017). Klinger (2017) found that greater car availability, old age, employment and increasing income and number of children all inhibited travel behavior changes to multimodality, but that relocation to places with increased bike and public transportation availability enhance travel behavior changes to multimodality.

Scheiner and Holz-Rau (2013) found evidence for the importance of planning to mode choice: walking frequency dropped as walking distance to public transportation increased and driving frequency rose (and public transportation and walking frequency fell) as ease of workplace parking increased and vice -versa. Jiao et al. (2011) found that aspects of the built environment (e.g. longer distance to store, more at-store parking, lower street density, lower clustering of stores) were strong predictors of driving for shopping trips. Regarding residential relocation, Klinger (2017) argues that relocation has ‘tremendous potential’ in changing travel mode behavior, but this is highly dependent on the change in the built environment, mode accessibility, variability and city mobility culture. Krizek (2011)

observed households as they changed residences and concluded that neighborhood accessibility, measured by built environment characteristics, changed household travel behavior as improved neighborhood accessibility reduced vehicle miles traveled. Goodwin (1989) noted that public transportation systems, contrary to their purpose, may not effectively support individuals experiencing life events causing public transportation -dependency or travel captivity. On the other hand, Bagley and Mokhtarian (2001) argue that neighborhood type (traditional and suburban) has little effect on travel behavior and that changes in travel behavior are more due to attitudinal, lifestyle, and demographic variables than the built environment.

Here the life-oriented approach to researching travel behavior change can be applied not by examining life choices or adult milestones, but by the life event of the COVID-19 pandemic. Though there is currently an obvious opportunity for pandemic travel behavior research, this chapter is unique in that a life-oriented approach to travel mode change, while considering elements of the built environment, is applied. The main research question in this chapter explores changes in four life domains (work/study, shopping, social contact, and free time), variation in residential neighborhood type (rural, suburban, and urban), and their effects on changes in four travel modes (walk, cycle, car, and public transportation). By evaluating the effect of changes in life domains on changes in mode use, travel behavior during future crises might be better anticipated and (albeit temporary) positive (sustainable or healthy mode choices) or negative (pollutive or sedentary mode choices) changes can inform travel behavior research. As aforementioned, previous research states that travel behavior changes due to life events can become permanent. Therefore, it is possible that post-pandemic travel behavior may drastically evolve. It is important to further investigate any significance the built environment may have as residential neighborhood could unevenly distribute changes in travel mode.

Data and methods

Sample recruitment

An online survey in Flanders, Belgium was distributed during two weeks (20 April – 4 May 2020) of the COVID-19 lockdown period. Convenience sampling via Facebook was used for survey collection by targeting 41 municipality community groups for two reasons. First, as the duration of lockdown could not be anticipated, it was important to spread the survey quickly while reaching many people. Second, there was an interest in targeting a range of neighborhood types (a mix of residents of high-density areas in Ghent and Antwerp and those in less-dense surrounding rural areas). Therefore, communities were specifically selected in this way. The survey posed questions regarding respondents' change in travel modes and life domains while respondents were experiencing lockdown which is a more accurate depiction of attitudes and behavior than if a retrospective survey were taken. Respondents were also asked demographic information, including residence, to which 854 individuals responded.

Sample characteristics

Demographic characteristics included gender, age, employment, education, income and residential neighborhood (**Table 1**). This sample had an overrepresentation of women, therefore, a weighted gender variable was used for all reported statistical analysis. A continuous 'residential neighborhood score' (Adams et al. 2014; Ewing and Cervero 2010) was created using respondent address information by geocoding and evaluated using built environment variables (population, transit station, street-network intersection, and land use mix densities – shapefiles retrieved with open source availability through the Geoportal of the Belgian Federal Institutions (2020)). Residential neighborhood scores (range [-7.05 to + 5.05]) were categorized by median split (low, mid, high; Table 1) for mean-comparison analysis but remained in their original continuous form for regression analysis. Meanwhile, the age variable was categorized and binary variables were used for those who are female, university educated,

employed/studying and with a monthly household income over €3000 (US $3563). The income variable was categorized by an approximate median split and income for the sample is elevated compared to the Flemish population which should be kept in mind when interpreting results.

Table 1. Demographic characteristics of respondents.

Characteristic	% of Sample
Female	74.0
University educated	65.7
Employed / studying	65.0
Household income >€3,000 (US $3563) /month	54.6
Age	
≤25	11.1
26-40	30.3
41-55	29.7
>55	29.0
Residential Neighborhood	
Low	33.2
Mid	32.9
High	33.9

Change in daily movements and life domain

Participant responses (5-point Likert scale: *strongly decreased* to *strongly increased*) were recorded to the question, 'How do the anti-coronavirus measures affect your daily movements?' for four modes: walk, cycle, car, and public transportation (**Table 2**). Participant responses (5-point Likert scale; *no change (1)* to *completely different (5)*) were recorded to the question, 'How do the anti-coronavirus measures affect your daily life?' for four life domains: work/studies, shopping, contact with family and friends, and free time. The latter question is used in its original discrete form for regression analysis, but was used in a binary form ([un]affected by COVID) for mean-comparison analyses in order to simply compare two groups instead of five (which would be complicated and not particularly informative). Those responding with a 1 or 2 were placed in the 'not affected by COVID' category, and those responding 3-5 were placed in the 'affected by COVID' category. Change in childcare was also asked, but due to severe multicollinearity with other life domains and a low response rate (30%), this variable was not used in this analysis. Mode use before lockdown was measured by asking how often respondents used various travel modes

(walk, cycle, car, public transportation) on a 5-point Likert scale (*never (1)* to *always (5)*). Changes in mode use were measured by asking to what extent the use of these modes changed due to lockdown (*decreased a lot (1)* to *increased a lot (5)*). Table 2 shows a slightly elevated mean indicating increase in walking, with reduced means indicating reduced car and public transportation use. Elevated means for all life domains indicates that all domains were greatly affected by the lockdown. Average mode use prior to lockdown indicates that the car was most often used, followed by cycling and walking; public transportation was least used.

Table 2. Key variable responses.

Key Variables		N	Mean	Mean Pre-Lock-down	Change in Mean
Change in Daily Movements (range [1,5])	Walk	854	3.44	2.38	+1.06
	Cycle	854	3.04	2.66	+0.38
	Car	854	1.52	3.32	-1.80
	Public Transp.	854	1.81	1.65	-0.16
Change in Life Domains (range [1,5])	Work/Study	700	3.89		
	Shopping	844	4.10		
	Social Activity	851	4.81		
	Free Time	849	4.40		

Results

First, ANOVA mean-comparison tests (**Table 3**) were performed to explore how changes in the four life domains relate to the use of the four travel modes. Regarding work/study, both affected and unaffected groups walked more and used the car less, but the affected group saw even stronger effects. The affected group increased cycling while the unaffected cycled slightly less. This suggests that respondents whose work/study life domain was affected by lockdown were walking and cycling substantially more and using the car substantially less than those with this life domain unaffected and that perhaps cycling compensated for some changes in work/study time.

Regarding shopping, both affected and unaffected groups used the car and public transportation less, but the affected group saw even stronger effects. These results suggest that respondents whose shopping life domain was affected were using the car and public transportation substantially less than those with this life domain unaffected and that some

shopping trips requiring the car or public transportation were discontinued.

Regarding social contact, both affected and unaffected groups used the car and public transportation less, but the affected group saw even stronger effects. The affected group increased cycling while the unaffected cycled slightly less. These findings suggest that some social trips requiring car or public transportation were discontinued and that perhaps cycling compensated for some loss in social contact.

Regarding free time, both affected and unaffected groups used public transportation less, but the affected group saw even stronger effects. This suggests that perhaps some free time activities requiring public transportation were discontinued.

Significant differences between residential neighborhood types were not seen with the exception of a significant difference regarding the change in public transportation use between suburban and urban residents, even though both used less public transportation, suburban residents used even less than urban residents. This suggests that travel behavior changes were mostly similar regardless of residential neighborhood, and perhaps that suburban residents had the most flexibility to discontinue their public transportation use. Though public transportation services were reduced in Flanders, this was likely disproportionate, with urban areas less limited and suburban areas more limited (where demand is normally lower) and, therefore, more pronounced.

Table 3. Average change in transportation mode for respondents with and without life domains affected by lockdown and among neighborhood types.

Affected by COVID (N/Y)→	Change in Life Domain								Urban Score		
	Work/Study		Shopping		Social Contact		Free Time		Rural	Sub-urban	Urban
	No	Yes	No	Yes	No	Yes	No	Yes			
Number→	224	484	225	632	35	831	152	712	258	231	268
Walk	*3.28**	*3.59**	3.37	3.44	3.25	3.42	3.41	3.42	3.40	3.41	3.43
Cycle	2.97	3.14	3.10	3.05	2.73	3.07	3.19	3.03	3.02	3.04	3.05
Car	*1.76**	*1.47**	*1.66**	*1.48**	*2.00**	*1.51**	1.61	1.51	1.54	1.42	1.57
PT	1.94	1.85	*2.00**	*1.80**	*2.37**	*1.83**	*2.12**	*1.80**	1.81	*1.68*^{U}	*1.93*^{S}

Notes: PT= public transportation; *significant at $p<0.05$

Four ordinary least squares regression models further explore the relationships between change in life domains and changes in mode use during lockdown (**Table 4**). Though these variables were Likert-scale measurements, these data met the assumptions of linearity, homoscedascity,

and an absence of multicollinearity (all VIF values < 1.46) making ordinary least squares regression an appropriate choice.

Significant effects of change in work/study were found to have a positive effect on walking and a negative effect on car use. This finding indicates that, unsurprisingly due to teleworking and workplace closures, those with a great change in work also reduced their car use. This could either indicate that perhaps individuals experienced some compensatory behavior from work time to walking time or a more complementary relationship (those working from home wanted to get out of the house/exercise/etc.). It is assumed that the increased walking and cycling trips are undirected travel trips since the number of out-of-home activities significantly reduced.

Significant effects of change in social activity were found to have a positive relationship with cycling and a negative relationship with car use. This result indicates, again unsurprisingly, that car trips reduced alongside a reduction in options for social activity, but also suggests that perhaps individuals experienced some compensatory behavior from social time to cycling time.

Significant effects of change in both shopping and free time were found to have a negative relationship with public transportation use. This observation could simply reflect the overall reduction in public transportation trips due to the lockdown regulations and the low means of respondent public transportation use prior to lockdown illustrates that this behavior continued during the lockdown.

There was not a significant difference in travel behavior change among residents of different neighborhoods, indicating that the pandemic affected travel similarly regardless of residential area.

Table 4. Unstandardized and standardized β values from ordinary least squares regression analyses investigating the effect of change in life domains on change in mode use; model controlling for gender, age, education, employment, income, and urban score.

	Change in Mode Use							
	Walk		**Cycle**		**Car**		**Public Transport**	
	R^2 = 0.024		R^2 = 0.012		R^2 = 0.054		R^2 = 0.032	
	β Coeff.		β Coeff.		β Coeff.		β Coeff.	
	Uns	**Std**	**Uns**	**Std**	**Uns**	**Std**	**Uns**	**Std**
Life Domains:								
Work/Study	*0.07**	*0.09**	0.04	0.06	*-0.12**	*-0.21**	0.00	0.00
Shopping	-0.04	-0.04	-0.01	-0.01	-0.03	-0.04	-0.08	*-0.08**
Social Activity	0.07	0.04	0.16	0.08	*-0.18**	*-0.13**	-0.12	-0.07
Free Time	-0.03	-0.02	-0.07	-0.06	-0.02	-0.02	*-0.11**	*-0.10**
Res. Neighborhood	0.01	0.02	-0.03	-0.06	0.02	0.06	0.02	0.04
Covariates:								
Female	0.03	0.01	-0.11	-0.05	-0.08	-0.04	-0.14	-0.07
Age	*-0.01**	*-0.10**	0.00	-0.06	*-0.01**	*-0.22**	0.00	0.04
University educated	*0.24**	*0.10**	0.12	0.05	-0.10	-0.06	-0.09	-0.04
Employed/studying	0.02	0.01	-0.08	-0.03	0.15	0.09	*0.21**	*0.10**
HH Inc. >€3000/M	*0.26**	*0.11**	0.05	0.02	*-0.24**	*-0.14**	0.02	0.01

Note: * β values significant at *p<0.05* level

Though not the intended focus of this study, some of the relationships between covariates and change in mode use are also worth mentioning. First, both walking and car use were negatively associated with age. Older groups were more likely to decrease their car use, and this could indicate that they are more likely to hold flexible, teleworkable jobs. Older groups were more likely to decrease their walking behavior which could indicate greater caution in regard to the pandemic itself. Those who were employed or studying were more likely to increase their car and public transportation use. This could indicate that those still traveling to work during the lockdown took advantage of decreased levels of traffic and congestion as roads and train/bus cars were less occupied.

Discussion and conclusion

This study regards the COVID-19 pandemic as an important life event having the capacity to strongly impact people's activity-travel behavior. Specifically, how the change in life domains affected the change in mode use during this live event was investigated as well as the effects of

the built environment on mode use. In addition to somewhat obvious findings that shopping, social, and free time trips requiring the car and public transportation were likely discontinued, this research found evidence of (1) compensation for changed working/studying time with walking time, (2) compensation for changed social contact with cycling, and (3) similarly affected travel behavior regardless of residential neighborhood even though suburban residents may have more mode-resilience and less public transportation -reliance during the pandemic lockdown. There was further evidence that those working/studying may have taken advantage of decreased traffic and congestion with an increase in car and public transportation use. Additional findings could suggest that older respondents may be more likely to hold flexible, telework-able jobs and treat the pandemic with greater caution.

The change in travel behavior due to this life event is important to investigate because there may be residual travel behavior changes lasting post-pandemic that can affect long-term travel decisions. Additionally, understanding how travel behavior in terms of life domain changes during times of crisis can help create more effective and efficient response plans. Further, the suggested compensation for work/study and social time with walking and cycling trips could be useful to those interested in promoting active travel for health or sustainability purposes. In agreement with other research outputs regarding the COVID-19 pandemic and travel behavior, an increase in active modes and a decrease in motorized modes was seen. However, only a reduction in public modes instead of a switch from public to private modes was seen. The main limitation of this paper includes the high ratio of women to men due to the convenience sampling method. Though gender effects were not taken into account in this study and a weighted gender variable was used to combat this discrepancy, it is possible that the responses of women could overshadow those of men resulting in findings representative of female behavior. Further research should investigate if there is travel behavior recovery post-pandemic or if some of the habits developed during lockdown persist, and how maintaining healthy sustainable changes regarding increased active travel and decreased motorized travel can be encouraged.

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