

# “GTALK Report Series: Safer Cities in Asia”

## *Fukuoka, Japan*



*Unsplash, 2019*

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Report by the Women in Transport Leadership Knowledge Network on the Gender and Transport Assemblage of Learning and Knowledge (GTALK) Project

Published by the Women in Transport Leadership Knowledge Network (WITL)  
Melbourne, Australia

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# GTALK Report Series:

## Safer Cities in Asia

Gender and Transport Assemblage of Learning and Knowledge



The **Women in Transport Leadership Knowledge Network (WITL)** is an international community of transport scholars with the ambition of encouraging more women and girls to take up careers in transport and foster women's leadership in the transport sector. In partnership with transportation domestic societies in Asia, and the regional transport peak body Eastern Asia Society for Transport Studies (EASTS), we collectively aim: 1) to increase the profile and global presence of women leaders in transport; 2) to strengthen women's voice to be able to advocate their distinct transportation needs; 3) to acknowledge and celebrate female leadership; and 4) to employ research to gather evidence base to better address the gendered dimension of transport planning and design, strategically supporting the United Nations' Sustainable Development Goal (SDG) 11 (make cities inclusive and safe, resilient and sustainable) and SDG5 (empower women and girls). [www.witl.info](http://www.witl.info)

The **Gender and Transport Assemblage of Learning and Knowledge or GTALK** is a unifying framework an online, open-access knowledge database on gender and transport (e.g. information, research publications, webinar presentation materials, interviews of women transport leaders, including case study initiatives on pandemic response in transport settings across the several cities), to be shared nationally and internationally. These materials are developed to raise awareness and support the embedding of planning and policies that will help advance the shared regional opportunity of shaping more gender-inclusive and responsive transportation sector in Australia and Asia-Pacific.

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## Summary

This report presents the results and findings of the survey implemented in Fukuoka City in Japan in 2022. The report is drawn from a combination of literature review and online survey responses of (66) students attending the International college of Arts and Sciences, Fukuoka Women's University in Fukuoka city. This report documents their perception of public transport safety and shift to active transport during the COVID lockdown. The study was undertaken from Aug. 11th, 2021 to Oct. 13th, 2021. This report on Fukuoka City was an output of the GTALK Research conducted by the Women in Transport Leadership Knowledge Network.

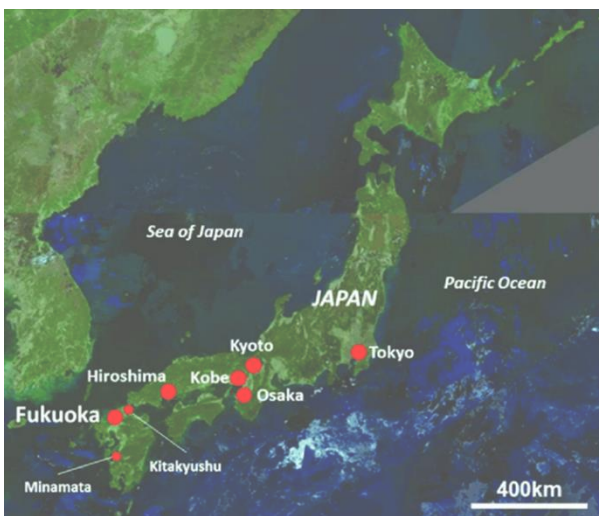


Image 1: By Ryutaro Uozumi, Unsplash, 2022,  
(<https://unsplash.com/photos/hprVhWVxxWw>)

## Introduction

The study was conducted in Fukuoka city in Japan. The city is one of 20 government ordinance-designated cities in Japan, and the prefectural capital of Fukuoka Prefecture in the Kyushu Region with an area of (343.46km<sup>2</sup>). It is composed of (7) wards (Higashi, Hakata, Chuo, Minami, Jonan, Sawara, Nishi). According to 2020 census, there are a total of 1,612,392 population living in Fukuoka city (Figure 1). There are 831,124 houses, male and female percentage are 47.2% and 52.8% respectively.

As for the educational status, according to “Fukuoka City’s Annual Statistical Report”, the city has 117 kindergartens, 149 elementary schools, 82 junior high schools, 10 special needs schools, 45 high schools, 9 junior colleges, 13 universities, 92 vocational schools, and miscellaneous schools. There are 18,294, 84,568, 41,813, 1,865, 44,094, 4,039, 72,390 and 34,420 students in each (as of 2021).



As for the socio-economic status, according to “Fukuoka City Economy Overview”, gross city production (nominal value) in 2018 (fiscal year) was 7.85 trillion JPY, which is the fourth largest among ordinance-designated cities in Japan. In addition, the gross city product (nominal) per citizen was 497 million JPY, which was the third largest. By economic activity, the tertiary industry accounts for about 90% of the city’s gross production, business establishments, and employees. Regarding the traffic situation in Fukuoka City, the road network consists of national roads, prefectural roads, city roads, and circular urban highways, etc. In addition, there are various modes of transportation such as JR (multiple local lines, Sanyo Shinkansen and Kyushu Shinkansen), private railways (Nishitetsu Tenjin Omuta Line, Nishitetsu Kaizuka Line), subways (Airport Line, Hakozaki Line, Nanakuma Line), buses, and share cycles (Figure 2). According to the latest population census, the major transportation for the city is private car. There are 224,896 of population use private car for their daily commute. It is 26.8% of the total (figure 4).

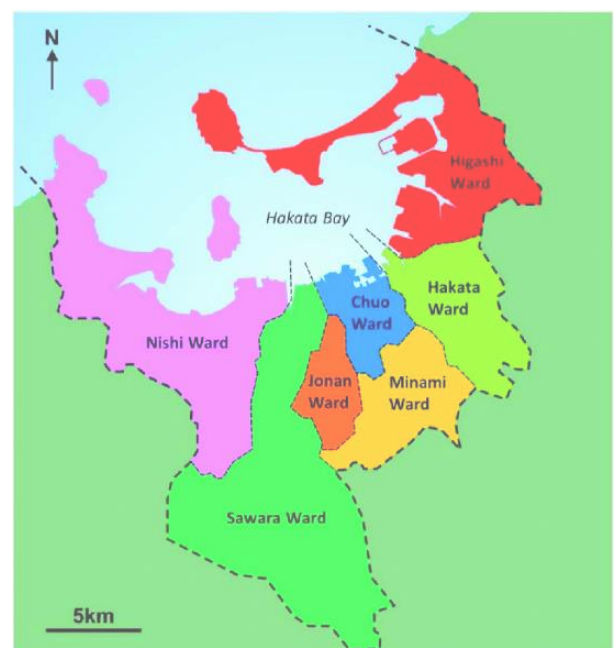


Figure 1: Location (Left) and wards (Right) of Fukuoka City (Source: Mabon, et al., 2019)





Figure 2: Traffic situation in Fukuoka City (Source: Fukuoka prefecture, 2016)



Figure 3: Location of Fukuoka Women's University (Source: Fukuoka Women's University)

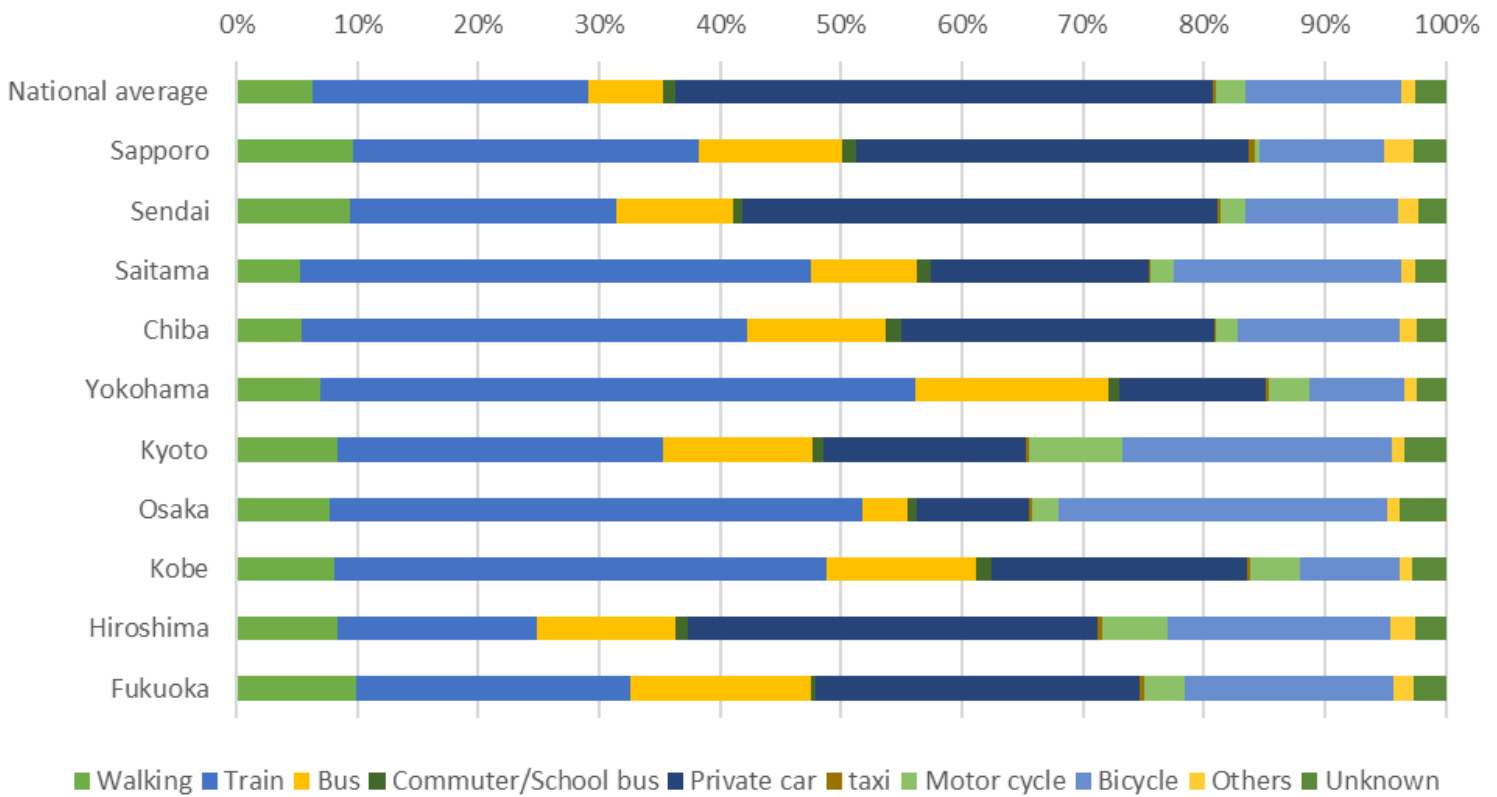


Figure 4: Mode share in major cities (Source: Statistics Bureau, Ministry of Internal Affairs and Communications, 2020)

# 2

## Respondent's Profile

This study assessed the perception of students from the Fukuoka Women's University on their mode of transport and perception of safety of transport environments. The questionnaire survey was conducted online and a total of 66 female students participated in it. While the study focuses on higher education students, there was bias towards female students as the university only caters for women, hence the sample size of this survey was 100% female students from the Fukuoka Women's University.

Most of the respondents are between the age of between 18-24 years old (92%), followed by 25-29 (5%) and 40-49 age groups (2%). Their educational attainment shows that 80% of the respondents hold some high school or high school level, and 15% with Bachelor's degree and 5% with Master's degree. Most of the respondents are not married or single/separated/divorced.

The majority 70% of students have part-time job while 27% does not, and 3% of students answered other. Figure 5 shows the employment status of the respondents. Most of the employed students work in private sector (93.62%), while a small number chose other (2.13%) and 4.26% of respondents are not employed in any sector. The household monthly income distribution of the respondents is mostly less than and equal to the

50,000 JPY (57.58%) and the variation of this household monthly income status is shown in Figure 6.

Most of the respondents live in Fukuoka city (70%) while the rest live in Fukuoka prefecture (excluding Fukuoka city) (27%) and Kyushu region (excluding Fukuoka prefecture) (3%) respectively. Furthermore, 57% of the respondents resided in Fukuoka city for more than 5 years, 23% for 1-5 years and 20% live in this city for less than a year. Over half of the respondents live with their family while the 21% live alone and 24% shared life with non-family members.

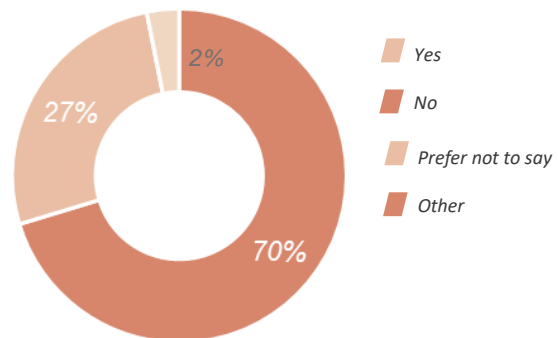


Figure 5: Employment status of the respondents

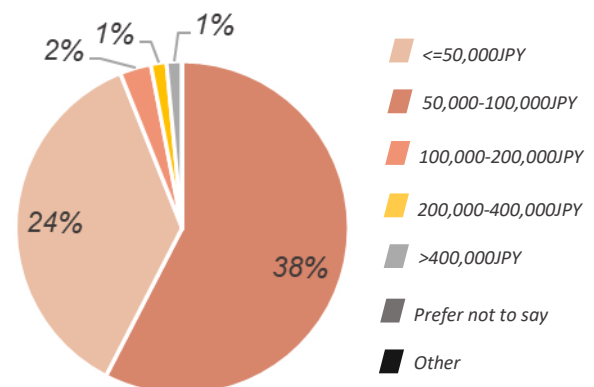


Figure 6: Household monthly income variation of the respondents



Image 2: By Victoriano Izquierdo, Unsplash, 2017,  
(<https://unsplash.com/photos/fnWPcT63z30>)

# 3

## Respondent's Trip Characteristics

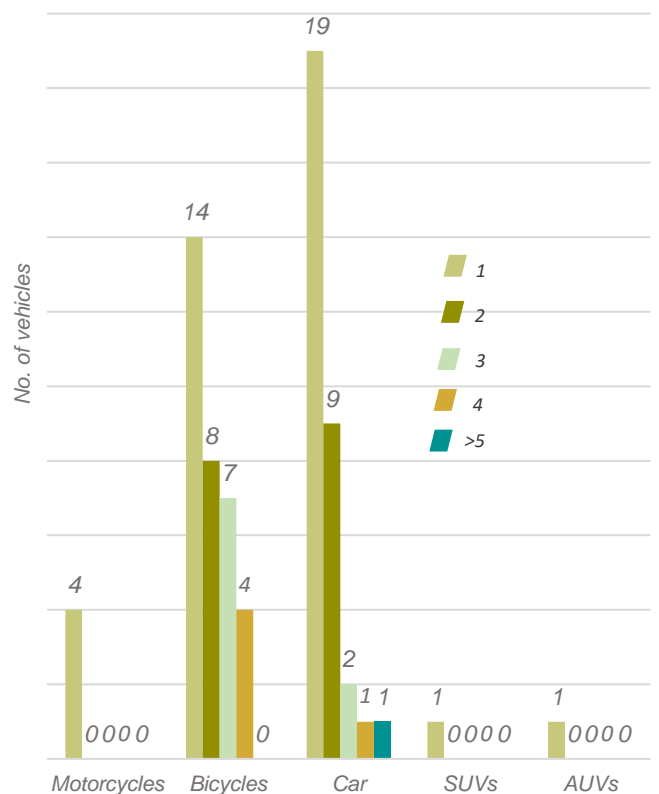
**The study results reveal that most respondents own at least one household vehicle (such as bicycle or car). Figure 7 shows the numbers and types of household vehicle own by the respondents. However, only 63.64% of the participants have a driver's license while the rest 36.36% does not.**

The trip characteristics of the respondents vary depending on the travel distance. For long distance trip from school, majority of the respondents (67%) use trains while the usage of public bus/regular bus is 25% and personal car is 4.69%. On the other hand, for short distance trip from school (less than 5 kilometres), almost half of the respondents (48.48%) prefer walking while 28.79% use public bus/regular bus and 15.15% use bicycle/E-bicycle. A small percentage of use of trains (3.03%) and personal cars (4.55%) for short distance trip.

The survey results show that the typical commute of the respondents is mostly from their residence (Home) to schools (93.94%). After school, 86.36% of the respondents head back to their residence (Home) while 6.06% travel to shopping mall, 4.55% to school/universities, and 1.52% each to office (Institution), and restaurants and entertainment places. The study found that there are other additional travel activities outside of the home and school. Most of the respondents go to shopping,

work, home, run errands, go to leisure/social places, study/education, business, and bring child to school/day-care/sports/other activities. The statistical results of this additional commuting activities are shown in Figure 8.

*In terms of household vehicle, which vehicle do you have? And how many?*



**Figure 7: The numbers and types of household vehicles owned by the respondents**

As for the all types of travel made outside of the home and school, what additional activities and trip purposes have you made?

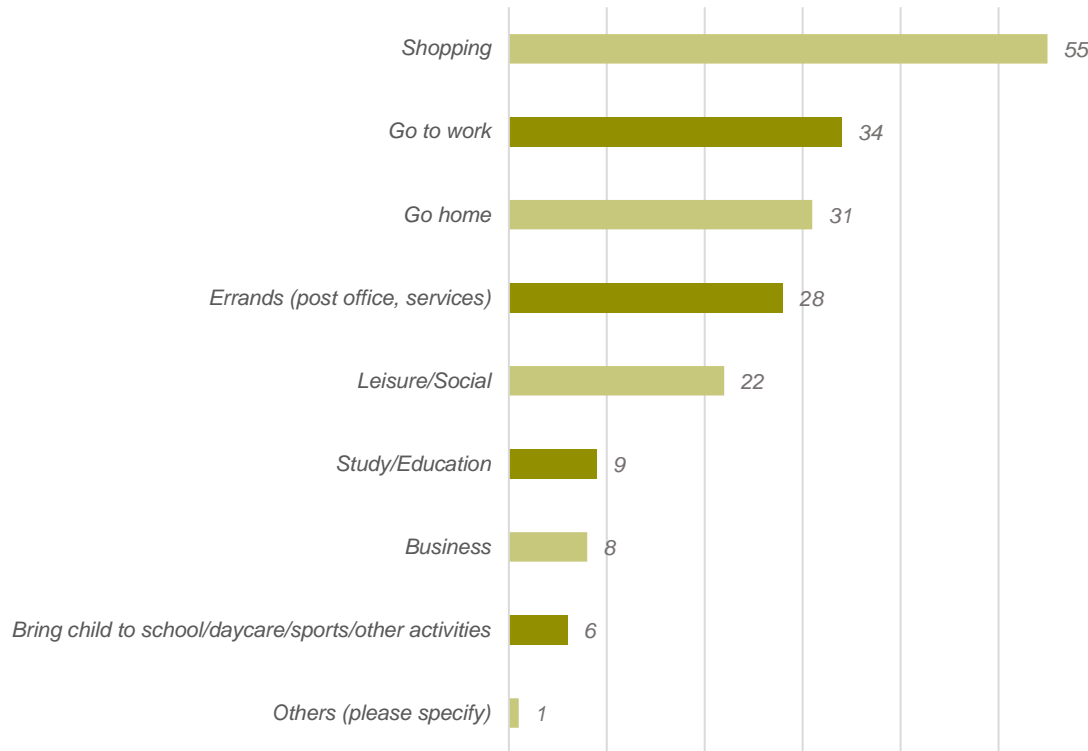


Figure 8: Respondents travel mode outside of home and school



Image 3: By Redd F, Unsplash, 2017, (<https://unsplash.com/photos/VTQuQGU7sco>)

# 4

## Empirical Study Findings

### 4.1 Perception on Public transport

The survey results show that before COVID-19, 34.85% of the respondents travel 4-6 days a week while 28.79% travel at least 1 day a week or less, 25.76% travel every day, 6.06% of the respondents travel 2-3 days a week and 4.55% choose others.

Figure 9 shows the trip characteristics of how often the respondents take public transport to school before the COVID-19. Some of the respondents travel once a week during COVID-19 as they live in dormitory or areas near the university (52.38%), were more likely to use personal automobile than public transport (9.52%), live in areas or routes without public transport access (9.52%), and due to slow route journey time (i.e. congestion, delays and lots of transfers) (4.76%) and others (23.81%).

The majority of the respondents (89.39%) claimed that they feel safe walking to the public transport stop/terminal on a typical commute day while 9.09% feel unsafe and 1.52% answered other. Moreover, on a typical commute day, 93.94% of the respondents felt safe using public transport and waiting at the waiting area/stop/terminal during daytime while 6.06% responded unsafe. However, only 73% of the respondents felt safe to use public transport after dark while 27.27% felt unsafe, as shown in Figure 10.

After dark, 65.15% of the respondents felt unsafe walking to the public transport stop/terminal on a typical commute day while only 30.30% felt safe to walk there and the rest 4.55% chose others, as shown in Figure 11.

Before covid-19. how often do you take public transport to school?

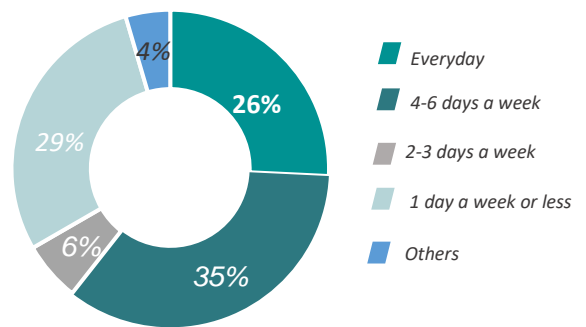


Figure 9: Trip characteristics of respondents in usage of public transport in a week before COVID-19

On a typical commute day, do you feel safe using public transport after dark?

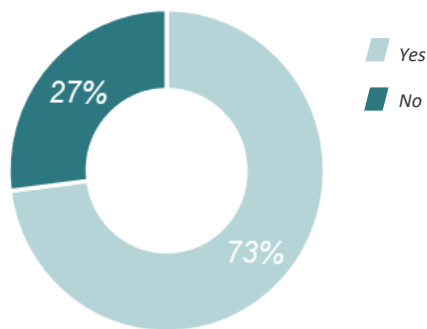
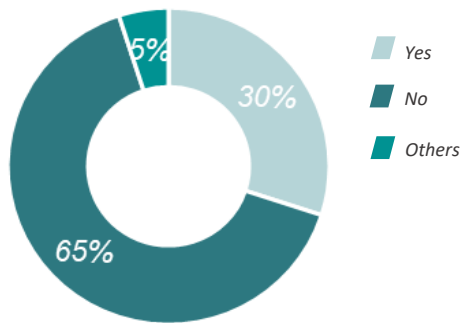


Figure 10: Respondents' perception on safety of using public transport after dark

There are significant problems that participants faced on the public transport they are using. The majority of the respondents (20.12%) agree that public transport is inconvenient and multiple transfer in terms for fare, travel time and delay.

Moreover, 15.24% of respondents felt that public transport can cause health risk (air pollution, COVID-19, noise, etc.) and it is unsafe during the evening in terms of information, waiting time and capacity. Other significant problems pointed by the respondents are shown in Figure 12.

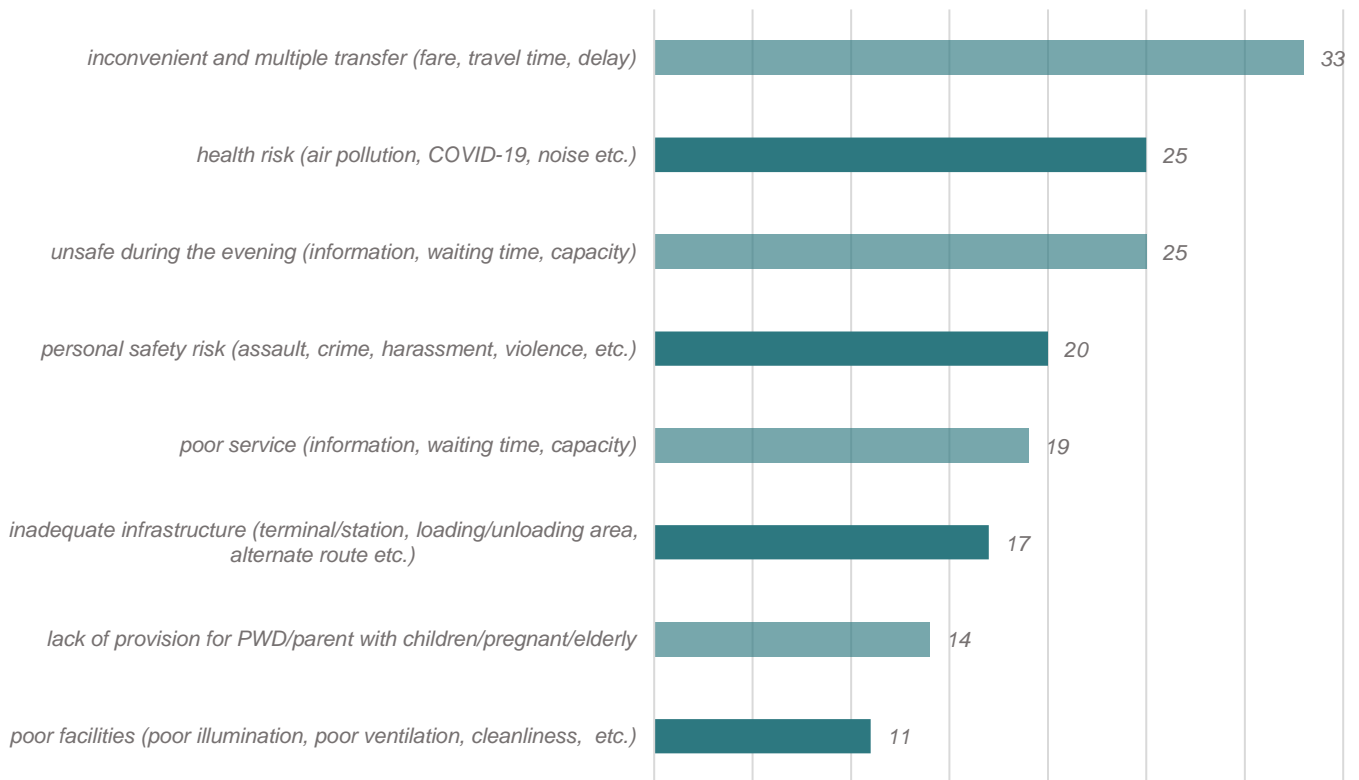
*On a typical commute day, do you feel safe walking to the public transport stop/terminal after dark?*



**Figure 11: Respondents’ perception on safety of walking to the public transport stop/terminal after dark**

According to the study, **15.38% of the respondents or someone they know experienced harassment/felt harassed or uncomfortable while in a public transport**, while 84.62% have not experienced. In terms of various forms of harassment verbal, physical, non-verbal harassment, in the last 3 years 8.82% of respondents experienced physical harassment while 5.88% of the participants experienced verbal harassment while riding/taking the public transport and 85.29% have never experienced harassment.

*Which of the following do you perceive as being a significant problem on the public transport that you are using?*

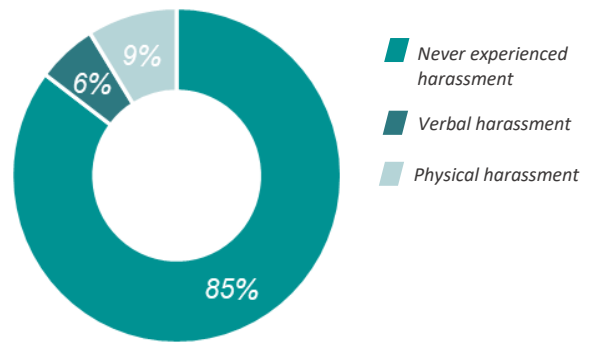


**Figure 12: significant problem on the public transport**

Figure 13 shows the number of participants and the types of harassment they have experienced while riding/taking the public transport in the last 3 years. In the last 3 years, while waiting at the waiting area for the public transport 1.52% of the respondents experienced verbal, and non-verbal harassment and another 1.52% experienced other form of harassment and the majority 95.45% of the participants never experienced harassment.

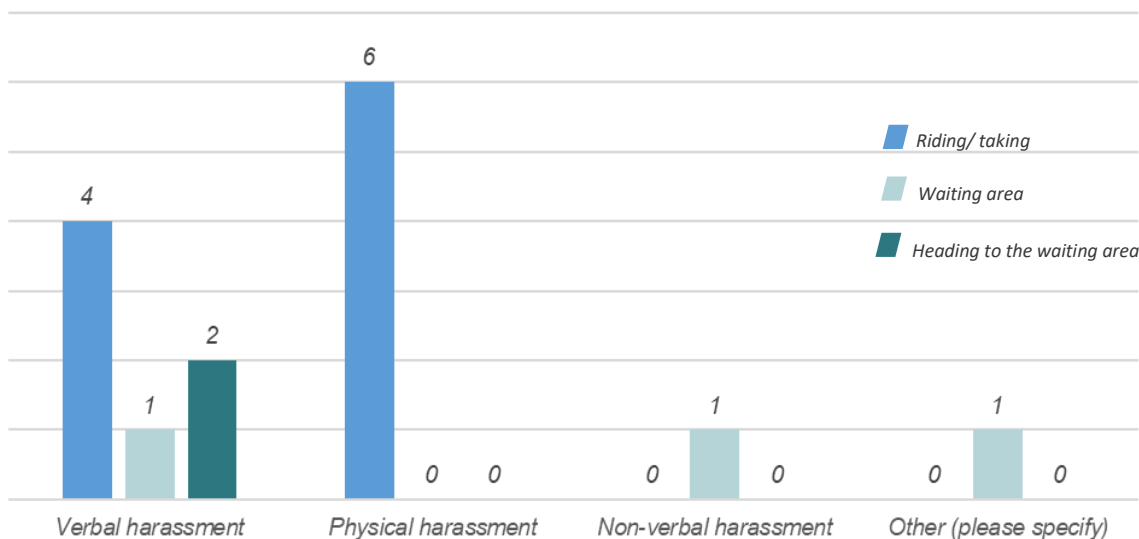
**In the last 3 years, while heading to the waiting area for the public transport, only 3.03% of the participants experienced verbal harassment while 96.97% never experienced harassment.** The number of participants who experienced any form of harassment when using public transport in the last 3 years are shown in Figure 14.

*In the last 3 years have you experienced any of the following while riding/taking the public transport?*



**Figure 13: The number of participants and the types of harassment they have experienced while riding/taking the public transport in the last 3 years**

*In the last 3 years have you experienced any of the following when you use Public transport?*



**Figure 14: The number of participants who experienced any form of harassment when using public transport in the last 3 years**

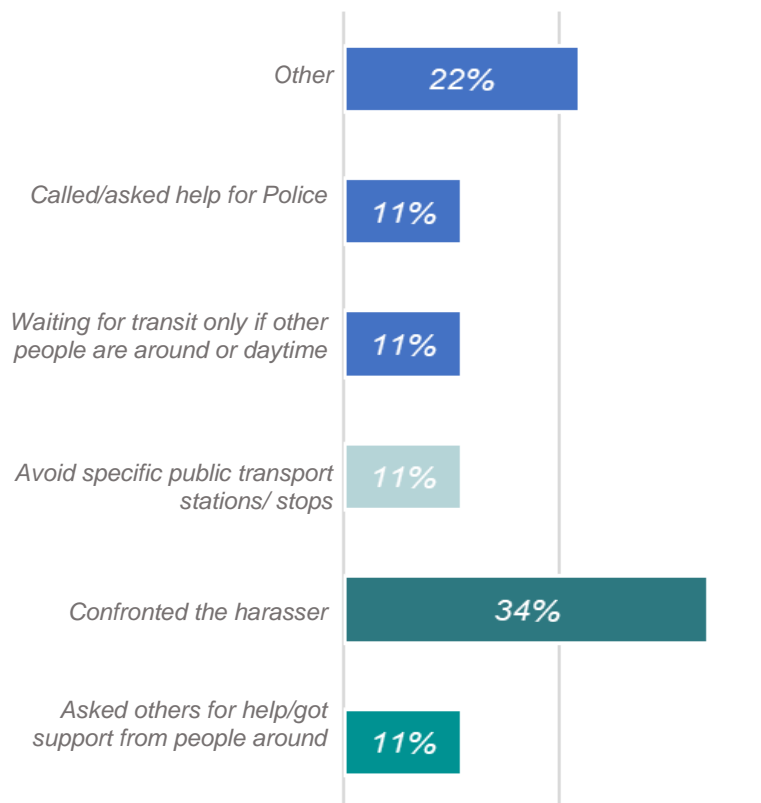


For those of respondents who experienced any form of harassment, 12.12% of them reacted/taken action/taken precautionary measures when someone has harassed them, or someone was being harassed and to ensure their safety. However, 9.09% of the respondents have never reacted/taken action/taken precautionary measures while 78.79% of the respondents have never experienced like that. Figure 15 shows how the respondents react/took action/take precautionary measures.

The study reveals that only 1.52% of the respondents got help when they were being harassed while 12.12% have not. On the other hand, 86.36% have never experienced like that. Someone who helped them confronted the harasser (50%) and asked others for help/got support from people around (50%).

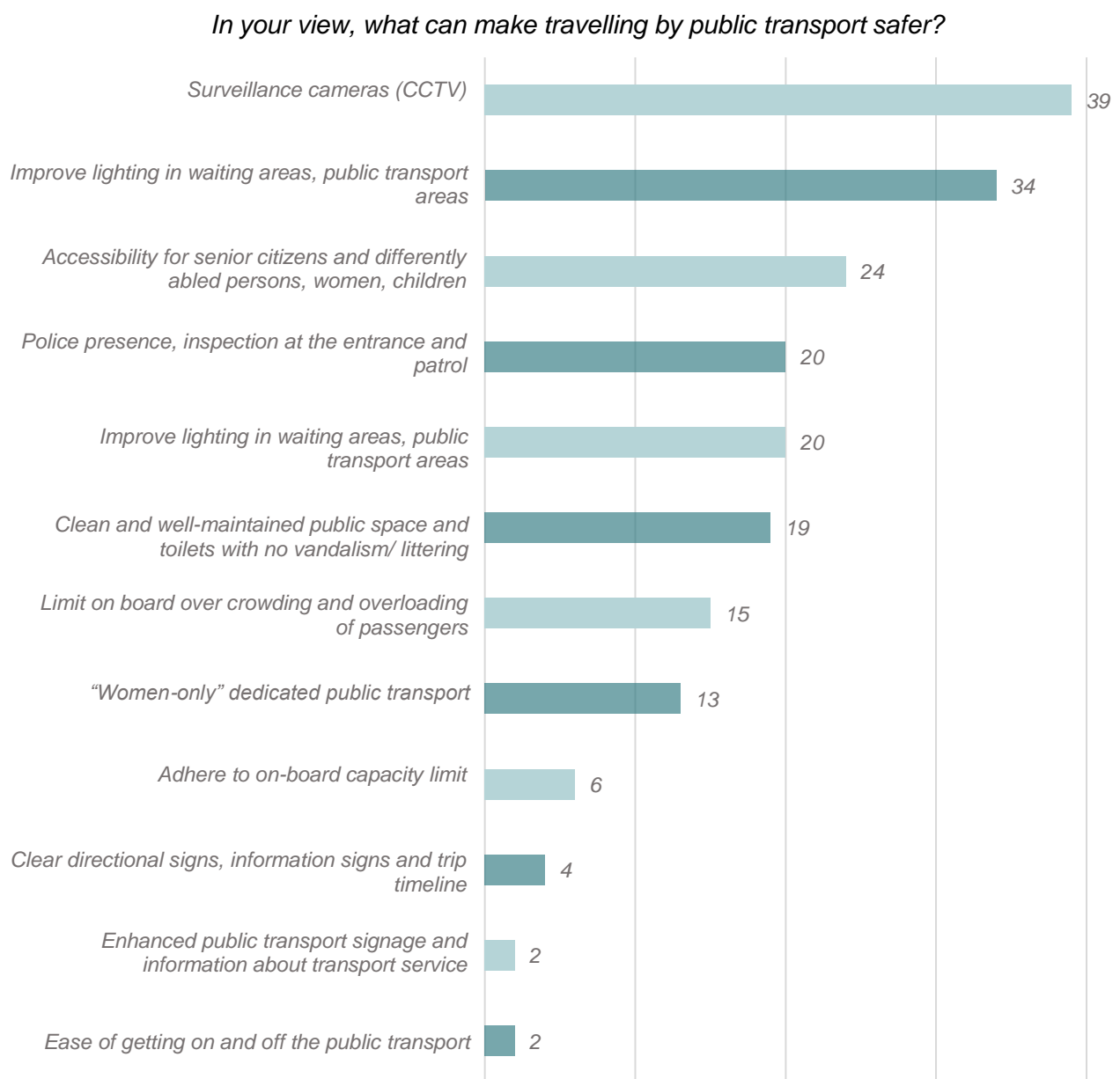
The top three most important measures that can make travelling by public transport safer answered by the respondents are surveillance cameras (CCTV) (19.70%), improve lighting in waiting areas, public transport areas (17.17%) and accessibility for senior citizens and differently abled persons, women, children (12.12%). **The other responses that respondents answered which can make travelling by public transport safer are shown in Figure 16.**

*How did you react/took action/ take precautionary measures?*



**Figure 15: Reaction, action and precautionary measures taken by the respondents**

The top three most important measures that can make travelling by public transport safer answered by the respondents are surveillance cameras (CCTV) (19.70%), improve lighting in waiting areas, public transport areas (17.17%) and accessibility for senior citizens and differently abled persons, women, children (12.12%). **The other responses that respondents answered which can make travelling by public transport safer are shown in Figure 16.**



**Figure 16: The measures that can make travelling by public transport safer**



Image 4: By Cerqueira, Unsplash, 2018,  
([https://unsplash.com/photos/PdwZ2UZaW\\_I](https://unsplash.com/photos/PdwZ2UZaW_I))

## 4.2 Perception on Active Transport

According to survey results, before COVID-19, 44.62% of the respondents take active transport (such as walking or ride a bicycle) to school 4-6 days a week while 33.85% take everyday and 15.38% take 1 day a week or less, as shown in Figure 17. Moreover, Figure 18 shows the types of conditions that prevent respondents from taking up walking or cycling more often. Among these conditions, the participants answered the distance (38.89%), does not own a bicycle or bike in poor condition (22.22%) and weather (16.67%). Some other responses included no/poor bike lanes/bikeways, unsafe during the daytime, unsafe during the evening and do not know how to ride a bike.

Almost half of the respondents (44.44%) said they would consider riding or walking to school more often if the above issues in Figure 18 were resolved while other 44.44% said may be and 11.11% said no. In their opinion, the respondents think the following conditions can encourage them to ride a bicycle to school more: provide dedicated and protected bicycle lanes/bikeways (58.76%), traffic safety policies that emphasize driver responsibility for avoiding crashes with pedestrians and cyclists 21.65%, develop a network of safe and connected cycling route with supporting infrastructure (e.g., rest areas) 7.22%, advocacy for public, political and media support for policy change 4.12%, others 4.12%, bicycle skills training program 2.06%, educational and promotional programs that address real and perceived barriers to cycling 2.06%, as shown in Figure 19.

Before covid-19. how often do you take active transport to school?

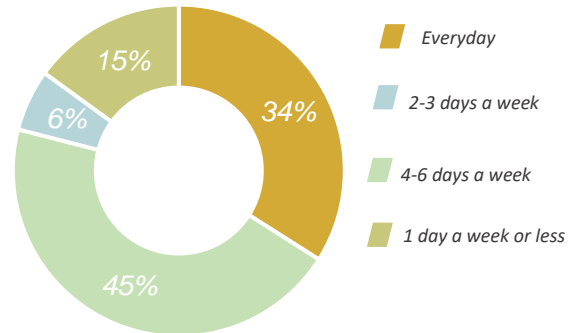


Figure 17: The number participants who take active transport to school before COVID-19

If you answered "1 day a week or less," which of the following prevent you from taking up walking or cycling (active transport) more often?

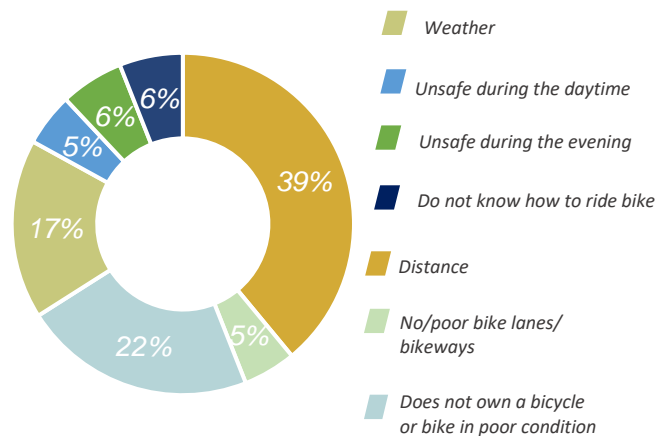
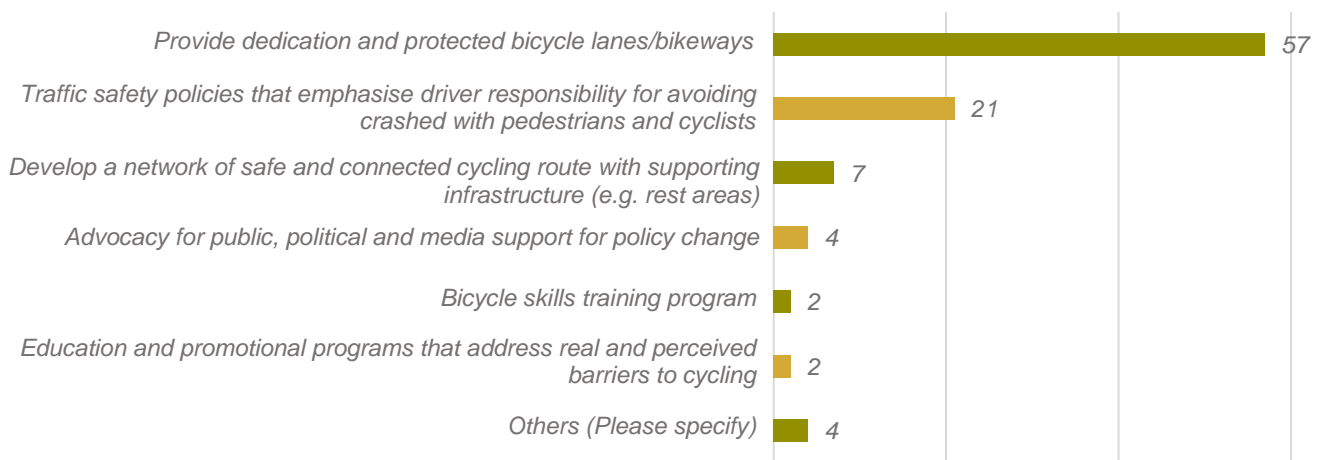


Figure 18: The facts that prevent respondents to take active transport more often

There are other conditions that would encourage the respondents to walk to school more. The top three conditions include: improve amenity (night lighting, covered walk, signage) of areas with intense pedestrian activity 21.13%, add more crosswalks for crossing pedestrian strategically along schools, hospitals, markets, parks, CBD areas etc. 19.72%

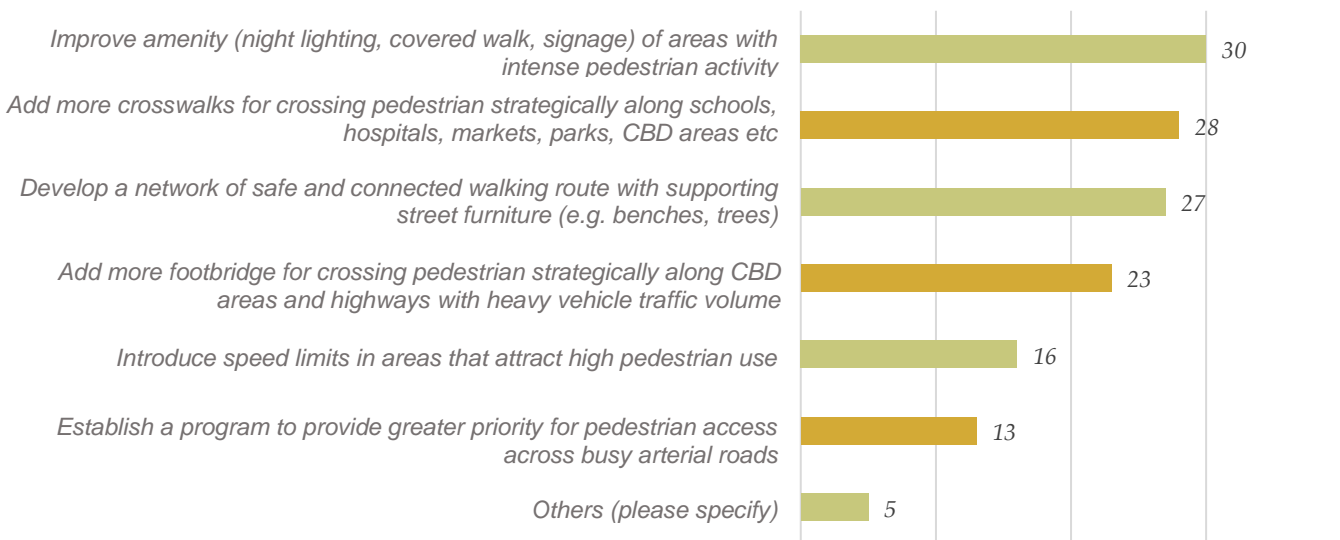
and develop a network of safe and connected walking route with supporting street furniture (e.g., benches, trees) 19.01%. Figure 20 shows the conditions that would encourage respondents to walk to school more.

*In your opinion, what would encourage you to ride a bicycle to school more?*



**Figure 19: The factors that would encourage respondents to ride a bicycle to school more**

*In your opinion, what would encourage you to walk to school more?*



**Figure 20: The conditions that would encourage respondents to walk to school more**

### Covid-related Questions

The travel characteristics of the respondents are somehow affected by COVID-19. Almost half of the participants (48.48%) said their travel change during this COVID-19 while the 45.45% claimed no changes and 6.06% said may be. Among all the initial reasons for changing day-to-day travel, the top four responses include health consideration and fear of being sick (59.38%), business/work related reasons (lean staffing, work from home, closure of jobs and shops) (25%), and government and community related regulation (quarantine, curfews, etc.) (12.50%) and travel restriction to cross borders (city, town, district, etc.) (3.03%).

On account of COVID-19, the respondents had to made travel adjustments which include changing the frequency of trips, changing trip purposes, changing daily trip routine/schedule, changing the mode of travel, etc. Figure 21 shows the survey responses of how the respondents adjust their travel in consideration of COVID-19.

During COVID-19, most of the respondents (73.85%) use public transport less while 12.31% use the public transport more, 7.69% do not/did not use public transport and 6.15% responded others. Moreover, the study reveals how often do respondents/did they take public transport (ojek, pedicab, bus, train, angkot) during the COVID-19 and almost half 45.45% of the participants use/used public transport less than 1 day a week, 28.79% use/used 1-3 days a week. Figure 22 shows the respondents usage of public transport during COVID-19.

**The majority of the participants (87.88%) said yes when asked if they are comfortable to use public transport after the risk of the pandemic had passed, while 12.12% said they will not feel comfortable using public transport after COVID-19**

What are the travel adjustments that you made in consideration of COVID-19 restrictions?

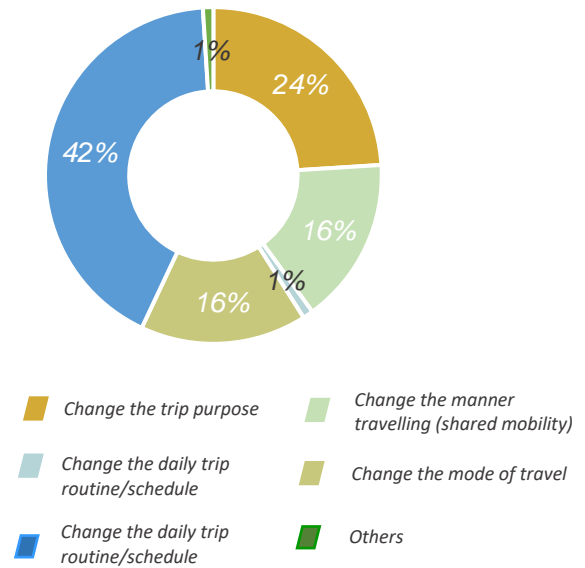


Figure 21: Travel adjustments made by the respondents in consideration of COVID-19

During the COVID-19 pandemic, how often do you/did you take the PUBLIC TRANSPORT?

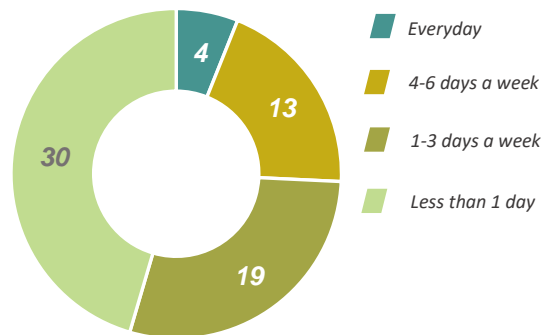


Figure 22: Respondents usage of public transport during COVID-19

The study reveals that over two third of respondents do not/did not ride the bicycle and/or walking during the COVID-19 pandemic while the 34.85% shifted to riding the bicycle and/or walking. The main reason for them to shift to walking and/or riding the bicycle is to avoid the public transport for fear of being sick with COVID-19 (63.64%), to change to healthy lifestyle (24.24%), due to delimited access to public transport (6.06%), public transportation is getting expensive (3.03%) and travel restriction to cross borders (city, town, district, etc.) (3.03%). Figure 23 shows the reasons for shifting to walking and/or riding the bicycle during the COVID-19.

During the COVID-19 pandemic, 36.92% of the participants walk 1-3 days a week, while 26.15% walk 4-6 days a week, and another 26.15% walk less than 1 day. Figure 24 shows how often the respondents walk/walked during the COVID-19 pandemic. **The majority of the respondents 67.19% said they will be able to continue patronizing waling as a mode to travel after the risk of the pandemic had passed.** On the other hand, 32.81% of the respondents said no, claiming they will not feel comfortable to walk.

This study reveals that during the COVID-19, one third of the respondents 33.33% ride/rode the bicycle less than 1 day, while 30.30% of the respondents do not own bicycles. The 22.73% of the respondents ride/rode bicycle 1-3 days a week, while 13.64% ride/rode 4-6 days a week. Figure 25 shows how often do/did respondents ride the bicycle during the pandemic. Over half of the respondents (52.31%) claimed that they will feel comfortable riding the bicycle after the risk of the pandemic while 15.38% said they will not feel comfortable in riding the bicycle and 32.31% of the respondents do not own a bicycle

What are the reasons for shifting to walking and/pr riding the bicycle?

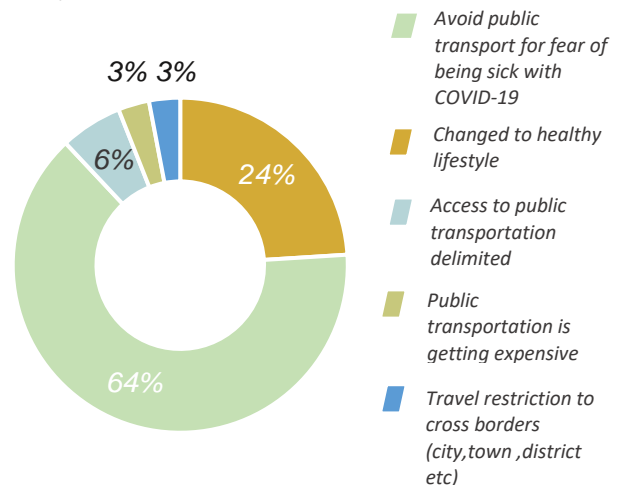


Figure 23: The respondents’ reasons to shift to walking and/or riding the bicycle

During the COVID-19 pandemic, how often do you/did you walk?

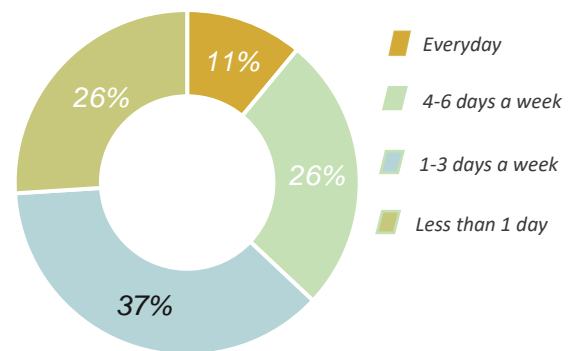


Figure 24: The respondents’ walking day during the COVID-19

During the COVID-19 pandemic, how often do you/did you rie the bicycle?

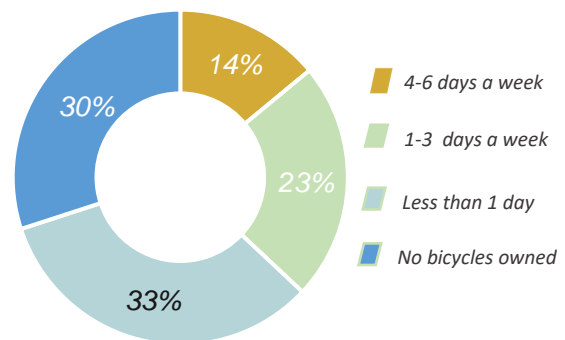


Figure 25: The respondent’s preference to riding the bicycle during the pandemic



Image 5: By Cerqueira , Unsplash, 2018,  
([https://unsplash.com/photos/PdwZ2Uzaw\\_I](https://unsplash.com/photos/PdwZ2Uzaw_I))



## 5

## Conclusion and recommendations

**The report reveals that the respondents' main commute route is from school to home, and it was found that before COVID-19 they have taken public transport more often 4-6 days a week, or every day. Regarding the safety of the public transport, this study found that the respondents have safety concern after dark. The majority of the respondents claimed that the public transport is safe during daytime.**

The victimization survey shows that some of the respondents have experienced physical and verbal harassment and only a few of them take reaction to that. Some of the reaction they took included calling help from police, confronting the harassers, asked others for help, avoiding specific public transport, and waiting for transit only if other people are around or at daytime. Based on these issues, the study recommended installation of surveillance cameras (CCTV); improving lighting in waiting areas, public transport areas; accessibility for senior citizens, and differently abled persons, women, children; police presence, inspection at the entrance and patrol; improve equipment in public transport (ventilation, sanitation, etc.); clean and well maintained public space and toilets with no vandalism/littering; limit on-board overcrowding and overloading of passengers; women-only dedicated public transport; adhere

to on-board capacity limit; clear directional signs, information signs, and trip timetable; enhanced public transport signage and information about transport service; ease of getting on and off the public transport; driving within speed limit and others.

This study concludes that the trip characteristics of the respondents are somehow affected by COVID-19 pandemic. The active transport to school (walking or riding a bicycle) before COVID-19 was well-taken but due to poor bike lanes, unsafe during daytime and evening, weather condition, not knowing how to ride a bike and owing a bike prevent them to use bicycle every day. Therefore, the study proposed to improve the bike lanes; to introduce/develop traffic safety policies that emphasize driver responsibility for avoiding crashes with pedestrians and cyclists; to develop a network of safe and connected cycling route with supporting infrastructure; to advocate for public, political and media support for policy change; to provide bicycle skills training program; and educational and promotional programs to address real and perceived barriers to cycling. Upon these recommendations, the study also found that there is the potential for the respondents to walk/ride bicycles due to fear of being sick with COVID-19 if they take public transport; if they wanted to change to healthy lifestyle; and if the access to public transportation delimited and public transportation is getting expensive; and travel restriction. It is shown that more than personal reasons, the conditional changes can persuade them to change to active transport

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