Pedestrian-priority streets in NYC -- A pre-COVID and in-COVID analysis

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Introduction

Streets comprise most public spaces and play a significant role in cities primarily for people walking, cycling, driving, socializing, and to every extent that could benefit the surrounding. As one of the most crucial parts in the city, streets could define the characteristics of the city as well as determine its shape and structure (Lynch, 1960). Every urban street has its own unique features that energize citizens' social and economic life, and their designs are essential elements for citys' livability especially in terms of pedestrian streets. Pedestrian movement has long been considered as one of the most favorable types of activities that facilitate human interaction with the urban environment (Yassin, 2019). However, during the past several decades, pedestrians' volume in the majority of streets has steadily decreased due to several interrelated factors. Sidewalks are narrowed for accommodating automobiles in order to create additional lanes. Greater distances between buildings and business centers have made downtown less walkable. People are more likely to be concerned with their personal safety that comes from both the sense of isolation and the vehicle traffic (Robertson, 1993). The situation is more obvious in dense megacities that are experiencing vast economic and population growth that outpaced the development of infrastructure.

Enhancing pedestrian activities therefore has become an important goal for most urban planners to create a safer, more walkable, and comfortable pedestrian environment. Starting in the 1960s, famous urban planners like Jane Jacobs and Jan Gehl began to question the

dominance of automobiles and its influence on creating better community and public spaces. Street design that prioritized pedestrians is suggested as a solution to revitalize the urban center and street liveness. Beyond transit functions, pedestrian-prioritized streets can advance individuals' physical and mental health and city's environmental, social, and economic sustainability by addressing problems like congestion, traffic accidents, pollution, etc (Shamusuddin, 2012). By prioritizing pedestrians over vehicles, this design can maximize spaces for physical activities and social interactions.

Besides the benefits of prioritizing pedestrians, studying the effect of major events and their long-term effects on the city is helpful in promoting post-event adaptation. As Gehl mentioned in his project *Public Space and Public Life during COVID,* major event such as COVID 19 will have a long term effect on our societies, it's vital to ensure a post-COVID19 people-first implementation and adoption of physical measures that can bring a sustainable public life in the future (Gehl, 2020).

This paper aims to examine the function of pedestrian streets as public spaces by answering the question of how people interact with pedestrian-priority streets in New York City. Considering the current situation with COVID-19 pandemic, more pedestrian-friendly streets are designed and opened with larger spaces for social distancing and outdoor dining, which serves as a comparison to pre-COVID pedestrian street design. Another goal of this research is to provide some insights for a more sustainable post-COVID pedestrian street implementation in NYC. Surveys are conducted to collect data from citizens of New York City for describing and analyzing their interactions and thoughts on the pedestrian-priority streets.

Definition and Types of Pedestrian-Priority Streets

Pedestrian streets began to act as urban commercial and recreational spaces in the second half of the 20th century. According to global designing cities initiatives, pedestrian-priority streets are defined as "places for people of all ages and abilities to use the city without competing with other modes of transportation." This research has divided the pedestrian-priority streets to three subcategories which are shared streets, pedestrian-only streets, and pedestrian plaza.

The concept of **shared street** was first proposed in the 1970s by Hans Monderman in response to the negative effects of motorization. According to New York City DOT street design manual, shared street is designed for slow traffic speed where pedestrians, cyclists and automobiles all share the same way. Typically employed on low vehicle volume and/or high pedestrian volume streets with 5 mph driving speed. Traffic and pedestrians' movements are mainly based on cooperation instead of strict traffic controls. The streets are served as public space for pedestrians to incorporate a variety of social activities with safer environments.

Pedestrian-only streets are streets that prioritize pedestrians where pedestrian volume is high and vehicular traffic is restricted. Typically placed and designed with commercial activities. The design creates public spaces for social interaction, including shopping, sitting, dining, promenading, or performing, as well as economic benefit to local businesses.

Pedestrian plaza transforms underutilized areas of the street to vibrant social spaces for surrounding residents and businesses, which energizes streets with communities' activities and creates open space for pedestrians.

Literature Review

Recent studies have proved that pedestrian walkability has strong correlation with livability of the city which elaborate the importance of prioritizing pedestrians in street design.

Livability is defined to be part of sustainability concept with one of the objectives to be promoting walkability, giving more accessibility, and encouraging citizens to walk (VTPI, 2010). In the research "Walkable Environment in Increasing the Livability of a City", surveys and observations were conducted to examine the role of walkable environment in making a livable city. The results showed that lack of walkable elements such as comfortable and wide walkways has affected the behavior of walking among the citizens (Shamsuddin, 2012). "Shared Space and Pedestrian Safety: Empirical Evidence from Pedestrian Priority Street Projects in Seoul, Korea" further investigated the effectiveness of pedestrian priority streets for pedestrian safety. Video and cross-sectional surveys data were collected at nine streets with the results showing that the design generally reduced the vehicle speed and increased the perception of pedestrian safety, particularly tackled problems in narrow streets without sidewalks (Lee, & Kim, 2019).

In terms of pedestrianization and street design, Robertson discussed the pedestrianization strategies for downtown planners by comparing skywalks and pedestrian malls as similar ways to separate pedestrians from vehicular traffic from their urban design, economic impacts, transportation and access, and contribution to downtown image. Pedestrian mall, which is a type of pedestrian-priority streets that major malls were designed for pedestrian-only. The study recommends that the best pedestrianization strategies need to fit existing downtown structure and density and types of activities to be attracted to the downtown (Robertson, 1993).

Lastly, Jan Gehl has discussed the pedestrian and the design of well-used public spaces in his book "Life Between Buildings: Using Public Space". He outlined three levels of human activity in public spaces: necessary and compulsory activity (e.g commuting, waiting for bus), optional activity (e.g sitting, strolling), and social activity (e.g talking, people watching, community events). Gehl thinks that the best designed public spaces are those that encourage the

optional and social activities. Pedestrian-priority streets are designed primarily to enhance social interaction rather than just a channel form movement and researchers have increasingly suggested that the streets that support stationary activities provide opportunities for "interactions with other people in a relaxed and relatively undemanding way." (Gehl, 2006) Hence, street pedestrianization is strongly correlated with a better social environment to increase sense of social cohesion as well.

Methods

We did descriptive research on the topic of pedestrian-prioritized street in NYC using convenient online surveys. The time the research was conducted was during the COVID-19 pandemic, so we decided to use an online survey with convenience and snowball sampling (a nonprobability method) to collect data without having physical contact with the participants. More specifically, we distributed online Qualtrics surveys via social media (mainly through WeChat, Instagram and text messages to people we know), and asked the participants to share it to other people if they felt comfortable. The survey contains 39 questions and data was collected through a 10-day period: 3 fully open ended questions, 8 embedded open-ended questions and 28 close-ended questions. The participants were not forced to answer the open-ended questions but were forced to answer major close ended questions. Since the survey took around 15 minutes to complete, we also provided incentives to the participants such as sending red packets and offering free drinks on us.

Our population of interest is the NYC dwellers of all ages who are both physically presented in NYC before the COVID pandemic and during the COVID pandemic. However,

since the survey was distributed through social media platforms, we expected to have most responses from students at NYU.

Results

Data collection and demographics :

We only received 34 full responses while 57 participants clicked into the link, which means that 23 participants did not finish the whole survey. Among the 34 participants who finished the survey, 14 were male and 20 were female. Since the survey was sent to our friends via social media, the major age group of the participants was from 18 to 24 with an occupation of student. Figure 1 shows a detailed breakdown of the age and occupation of the participants.

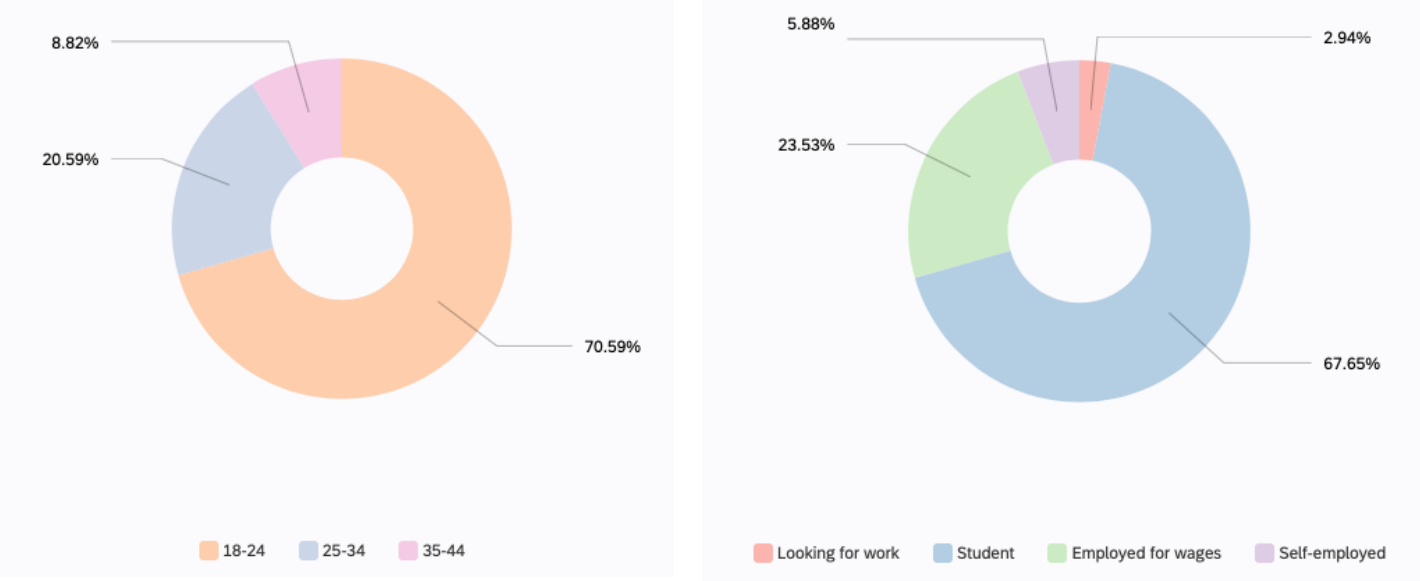

Figure 1:Age and occupation breakdown of participants

The age range of the 34 participants is from 18 to 44, with 24 from 18 to 24 (70.59%), 7 from 25 to 34 (20.59%), and 3 from 35 to 44 (8.82%). The occupations of the participants fall within four main categories: 23 were students (57.65%), 8 were employed for wages (23.53%), 2 were self-employed (5.88%) and 1 was looking for work (2.94%).

Pedestrian Habits and Interactions:

We collect data of the participants' walking habits and their interactions with pedestrian priority streets both before and during the COVID19. We define the importance of going for a walk with a score from 0 to 5, with 0 means not important at all and 5 means extremely important. We found that the average importance of going for a walk before COVID was 2.88, but it dropped to 2.12 during COVID time. We also asked the frequency of going out for a walk and the time spent on each walk. An obvious decreasing trend is observed in both the frequency and length of the walk. The result shows that before COVID, the majority of participants went out for a walk 2-6 times a week, while during the COVID, an obvious decrease was observed and the majority only went for a walk less than twice a week (Figure 2). With the decrease of frequency of going out for walk during COVID, the time the participants spent on a walk also decreased during COVID. The majority of participants spent less than one hour for a walk during the COVID while before the COVID the time spent on a walk was one to two hours.

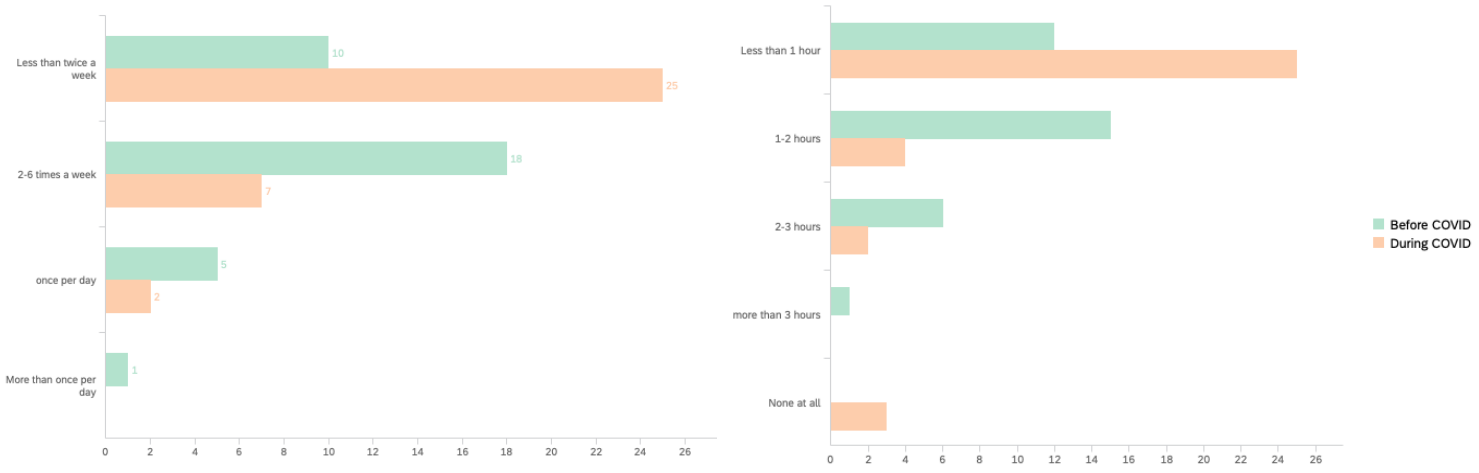

Figure 2: Frequency of going out for a walk and time spent on each walk

The distribution of purposes of walking in the city didn't vary a lot, the only difference was less people were observed doing the same activity (Figure 3). The top 3 purposes of people walking in the city is commuting, shopping and strolling with a decrease in all activities during the COVID time. One of the participants also responded that the purpose of walking in the city is dog walking. The survey also asked the participants which types of pedestrian prioritized street they mostly interacted with in reality and what type of pedestrian prioritized street they prefer to interact with. Result shows that more than half of the participants mostly interact with shared

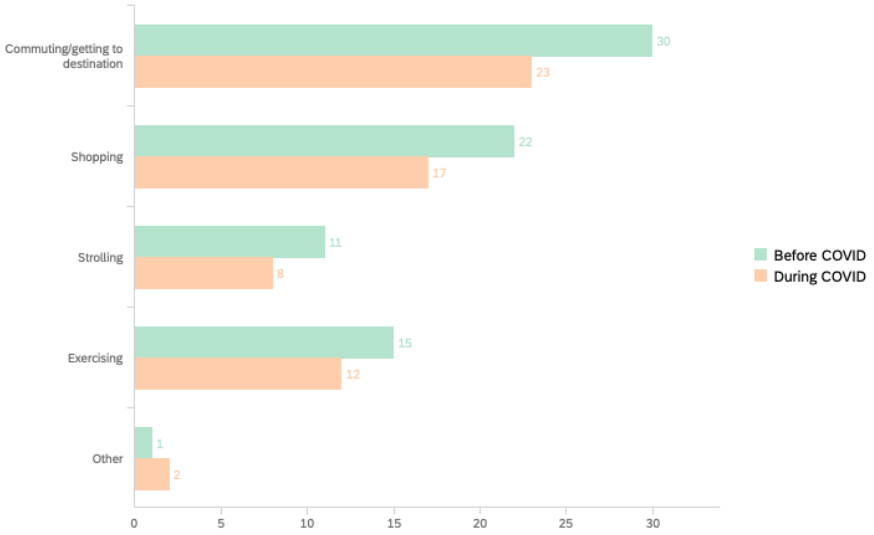

Figure 3: Purposes for walking in NYC

streets both before and during COVID. During COVID, there was an increase in interactions with pedestrian-only streets but a decrease in interactions with pedestrian plaza (Figure 4).

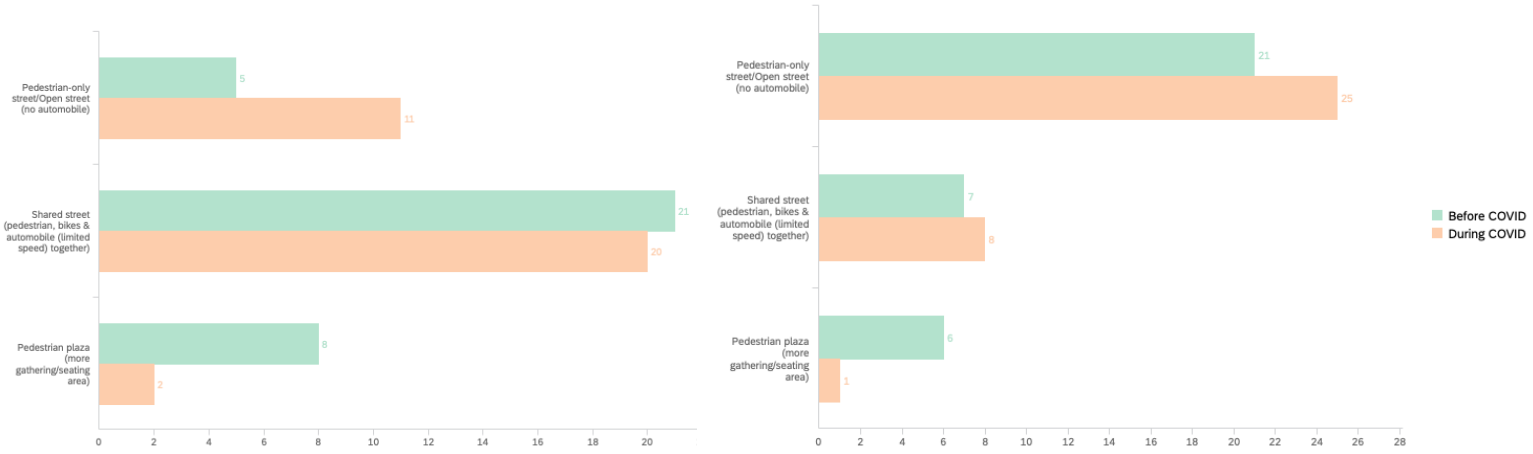

Figure 4: Types of pedestrian priority street people interact with (left) and prefer to interact with (right)

The most desired type of pedestrian-priority streets is the pedestrian-only street (62% before COVID and 74% during COVID). The needs for shared streets is approximately the same both before and during COVID (a bit more than 20%). It was interesting to notice that the need for pedestrian plaza decreased a lot during COVID (from 18% to 3%), but before COVID the need was about the same as the shared streets.

The result of interaction with pedestrian prioritized streets is shown in Figure 5. We learned that both before and during COVID, the top interaction with these streets were "just passing by". For all the other interactions, we can see a huge decrease in stay and resting, as well as dining, and socializing. Decrease is also observed in activities such as shopping and promenading. The result also showed that more than 80% of the participants didn't interact with pedestrian-priority streets on purpose. For those who interacted on purpose, two of them mentioned more sense of safety, with another two pointed out socializing with friends and one answered shopping as the main purpose. The trend is consistent with the trend that was observed in the purpose of walking in NYC.

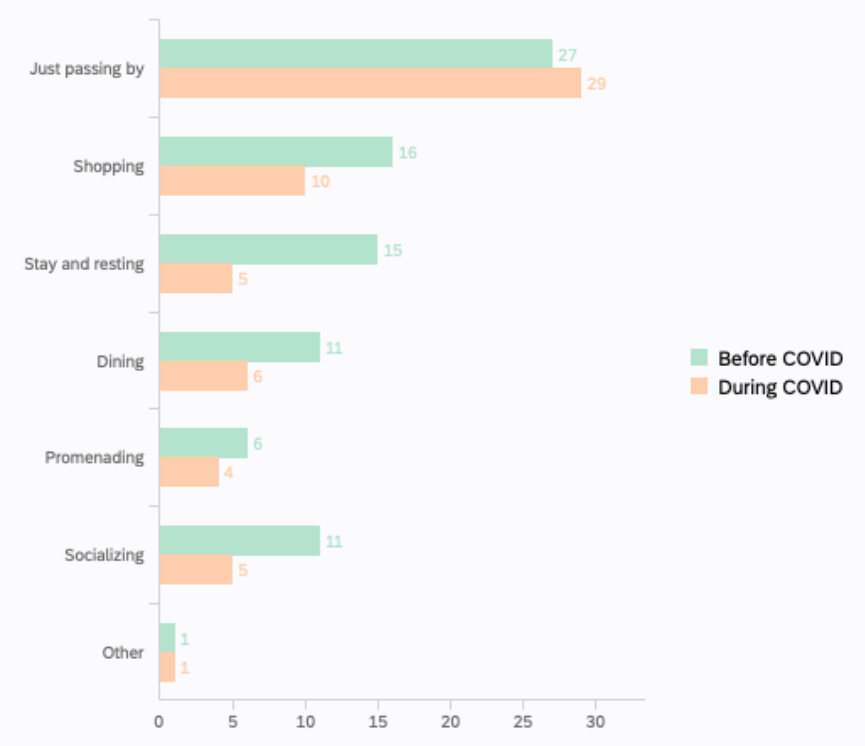

Figure 5: Interactions with pedestrian prioritized streets

Design Considerations:

General Feelings:

_____All of our participants have parks/gardens within 15 minutes of walking around their neighborhood. Half of the participants indicated there are pedestrian priority streets in their neighborhood and 9 of them felt good about having these streets. The other 8 participants indicated that they are either not paying much attention to these streets or they felt these streets are as normal as other streets. 8 out of the 15 participants who responded to the open-ended question wished to have more pedestrian priority streets being built. The main reason was that they would feel safer and would have more open spaces. Participants who didn't wish to have more pedestrian streets felt that these streets are not necessary and would bring inconvenience during construction. However, it's interesting to note that 26 participants would support the

decision that more pedestrian priority be built in NYC even if these streets might take over motorways. The survey results also showed that 65% of the participants were willing to spend more time using pedestrian-priority streets to get to their destination.

We also asked the participants about whether bikes should enter pedestrian-priority streets. 16 out of the 34 participants (47%) responded that they allow bikes to enter if the bikers only walk their bike. While 10 participants (29%) indicated that they don't want bikes in pedestrian-priority streets. The other 8 participants allowed bikes to enter the pedestrian priority streets even when the cyclists were riding the bikes.

Interactions During COVID:

For questions that asked about interactions with pedestrian-priority streets during COVID, it was interesting to notice that 68% of respondents didn't have more interactions, with only 21% had more interactions and 11% not sure if they were more involved. Among those who said to have more interactions, 86% experienced more interactions with pedestrian-only streets while 14% had more access to pedestrian plaza, with no one indicated an increase in interaction with shared streets.

13 out of the 34 participants (38.4%) did feel having pedestrian prioritized streets during COVID helped them interact with public spaces during the special time. The main reason was that these places allowed them to interact with the outside world under the safety regulations. Some participants also pointed out that these streets changed the way of interacting with public places while ensuring the functionality of the city as pre-COVID time.

We also asked people who drive about having pedestrian-priority streets. There were 9 drivers among the participants and 2 of them encountered inconveniences due to the pedestrian-priority streets. The two reasons given were heavy traffic and rerouting that brought

inconveniences. One of the 2 respondents also indicated the inconvenience got worse during COVID.

Current Issues:

We asked the respondents to pick the top problems of current NYC's street (up to 4 choices). We observe that the top issue (26 picks) the participants agreed on is dirty streets, followed by an equal vote for narrow paths, overcrowding and lack of perceived safety (19 picks). Another issue that had 16 votes is safety in relation to traffic. While the participants didn't feel aesthetics and accessibility as top issues.

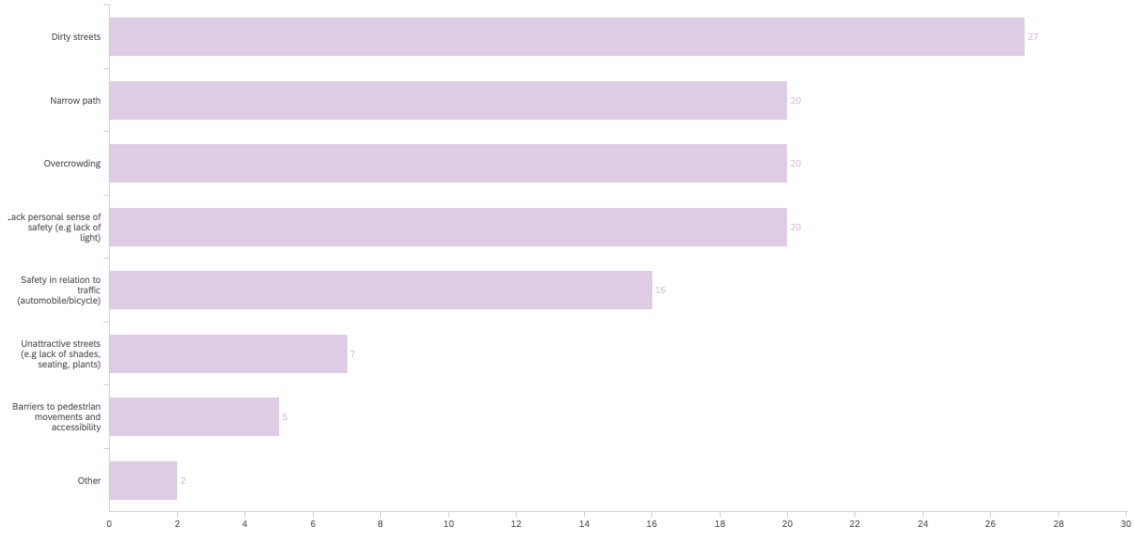

Figure 6: Top issues regarding NYC streets

Pedestrian-priority street design

We asked the participants to rank the given attributes from most to least important (1 to 6) regarding a pedestrian-priority street. Figure 7 shows a summary of the results. Since 1 means most important, the smaller the mean number is, the more important the feature is to pedestrian-priority streets. The table shows that the most important attribute is safety that allows the passengers to stay away from traffic, with a mean of 3.03. The second important attribute is

better walking experience with a mean of 3.16, followed by social interaction with others with a mean of 3.23.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Safer, stay away from traffic	1.00	6.00	3.03	2.09	4.37	30
2	Better walking experience	1.00	6.00	3.16	1.44	2.07	31
4	Social interaction with others	1.00	5.00	3.23	1.17	1.38	30
3	Recreational purpose (e.g shopping)	1.00	6.00	3.68	1.31	1.72	28
5	Better outdoor dining experience	1.00	6.00	3.87	1.41	1.98	30
6	Other	1.00	6.00	4.71	2.05	4.20	7

#	Field	1		2		3		4		5		6	
1	Safer, stay away from traffic	43.33%	13	10.00%	3	3.33%	1	6.67%	2	16.67%	5	20.00%	6
2	Better walking experience	6.45%	2	38.71%	12	19.35%	6	9.68%	3	19.35%	6	6.45%	2
3	Recreational purpose (e.g shopping)	3.57%	1	14.29%	4	32.14%	9	21.43%	6	17.86%	5	10.71%	3
4	Social interaction with others	10.00%	3	16.67%	5	26.67%	8	33.33%	10	13.33%	4	0.00%	0
5	Better outdoor dining experience	13.33%	4	3.33%	1	13.33%	4	26.67%	8	40.00%	12	3.33%	1
6	Other	14.29%	1	14.29%	1	0.00%	0	0.00%	0	0.00%	0	71.43%	5

Figure 7: Summary of features (important attributes for pedestrian-priority streets)

In the last open ended question, the participants were asked to give suggestions or changes regarding current NYC pedestrian-priority streets . The answers fell into these main categories: cleaner, safer, wider, and greener streets that are separated from traffics, having bike lanes and more attractive and evenly distributed throughout NYC.

Discussion

Back to our research question of investigating how people interact with pedestrian-priority streets in New York City, we've noticed from the survey data that among three different types of pedestrian-priority streets majority of people prefer pedestrian-only streets over shared streets and pedestrian plaza. Linking to the pedestrian-priority street design question which most people chose "safer, stay away from traffic" as the most important attribute to consider, we can speculate that the reason people preferred pedestrian-only streets is the higher perceived safety than other streets. Since the automobiles are restricted in pedestrian-only streets, pedestrians have the highest degree of freedom of doing any activities on the streets without worries about safety from the traffic. Another point that we could derive from the literature "Shared Space and Pedestrian Safety" is that pedestrians might not perceive an improvement in safety in shared streets where there are no segregated walking spaces and people would still be concerned about being hit by the cars. It is proposed that a safety zone in shared streets will encourage walking freedom by increasing their comfort (Kaparias et al., 2012). In other words, people are more preferred to walk in a designated pedestrian zone rather than share with other transportations (Lee, & Kim, 2019).

Regarding the activities people usually interact with pedestrian-priority streets, it is a little surprising that the majority chose "just passing by" since we originally thought that people would like to do more social activities such as sitting and talking with friends. This might be because our samples are mainly students and commuters who may not have too much leisure time interacting with streets. The results might be different when accounting for more elderly people and children. Another point is that New York City has a considerable number of parks and we could see in our survey that all respondents have parks near/in their neighborhoods.

People may choose parks over pedestrian-priority streets for better socializing and relaxing activities experiences. Besides, there are still a large portion of people who choose shopping and staying and resting as a way of interacting with pedestrian-priority streets. For those who interact on purpose, more than half of them credit the benefit to socializing and convenience of shopping. The results correspond with Jan Gehl's thoughts on public space designs that encourage optional and social activities as pedestrian-priority streets are found to be used for optional activities such as sitting, dining, shopping as well as socializing (Gehl, 2006).

Pre-COVID and in-COVID Trends

By comparing people's waking habit before COVID and during COVID, there was a clear trend indicating that people spent less frequency and time outside during COVID. With the top purposes for going out in the city remained similar, people showed a reduced activity towards all listed purposes. We may infer that the reduced activity/time spent outside was mainly due to safety consideration during COVID, as well as the limited access and opening of public spaces. Although there's reduced mobility within the city, people still live a pre-COVID life pattern during COVID. There's a need for socialization during COVID time which can be inferred from people's use of these pedestrian-priority streets such as outside dining, meeting people under safe distance.

Future pedestrian-priority street design

While people may not feel the need to have these pedestrian-priority streets, they will support the NYC government if the decision has been made to build more. This can be explained in two ways. The first is that the current street condition of NYC is not bad to an extent that walking on pedestrian-priority streets is favored. The other way to explain is that the current

pedestrian-priority streets are not functional enough for people to go on purpose, and people are willing to see more upgraded versions of current pedestrian-priority streets.

Related to Robertson's point of view that best pedestrianization strategies need to fit existing downtown structure and density and types of activities to be attracted to the downtown, we asked people's preferences and the ranking of current street problems (Robertson, 1993). In order to improve current conditions and promote the use of pedestrian-priority streets in NYC, the planned street should be clean and tidy with abundant waste disposal sites. The streets should also be wide enough to prevent overcrowding and protect personal spaces. Perceived safety, which can be achieved though enough lighting and having a safer surrounding environment, is another important consideration for pedestrians and is related to the usability of the pedestrian-priority streets. Although the participants favored pedestrian-only streets with cyclists only walking bikes, it's impossible to only promote this type of street. It may be due to the COVID time that people feel the pedestrian only streets are the best since it's rare for a public place to get overcrowded during COVID.

The planners and decision makers need to get ready for a potential prevailing trend of pedestrian-priority streets during the post-COVID period. Since there's a rise of pedestrian only streets during COVID, people may be Just as the participants suggested, these pedestrian-priority streets should be more evenly distributed across NYC and functional enough for people to fully utilize them. Another question is how to have more people using these pedestrian-priority streets and acknowledge the benefits of having them. It may not be realistic to construct a perfect pedestrian-priority street as the participants wished, but alternative approaches can be taken to achieve similar goals in these pedestrian priority street designs. The pedestrian-priority streets

should aim at serving the pedestrian first while at the same time remaining a balance between the surrounding traffic and environment.

Limitations and further suggestions

Since the survey was distributed online using convenience and snowball sampling, the demographics of the sample mostly contains students with an age between 18 and 24. The sample did not represent the population of interest, which should have contained all age groups from various occupations. Since we are using convenience and snowball sampling, the samples we had were not chosen at random, which may not be very generative to a larger population within NYC. From the relatively low completion rate (34 out of 57 were finished), we noticed that our survey was a bit long and we did not provide enough incentives to encourage the participants to finish the survey. Thus, we missed a lot of potential responses that could have contributed to this research.

For the same topic in the future, we may pick random passengers on the street, and should reach out to all age, ethic and social-demographic groups. More sample data should be collected. We will also generate maps showing people's mobility before and during COVID to visually see how these pedestrian-prioritized streets lead/influence citizens' interactions with public spaces. For future research, the next stage for this topic can be a post-COVID analysis of whether the implementation of more pedestrian-priority streets during COVID affects the NYC street planning and the way people interact with city's public spaces. We may also plan to discover more about open streets programs in NYC as well as other cities or countries that act as temporary pedestrian-only streets in the city that may help to benefit pedestrians' activities and surrounding neighborhoods and businesses.

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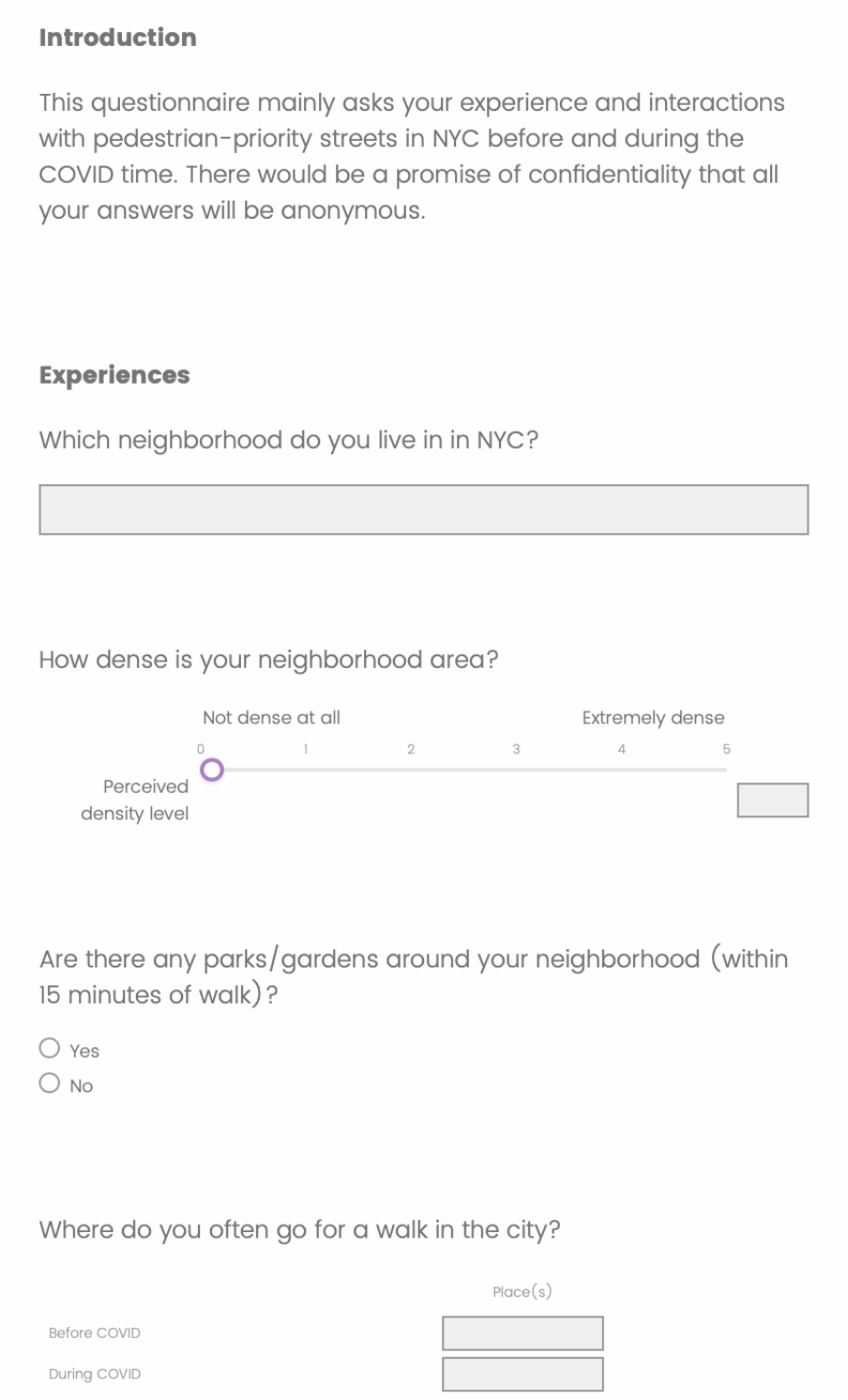
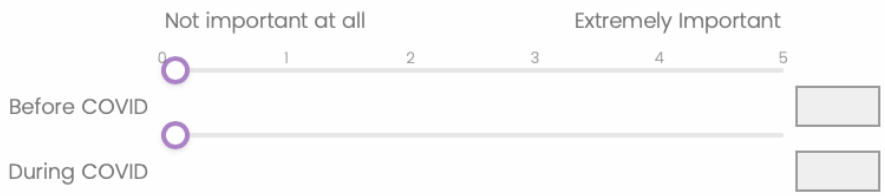
Appendix

Online Survey using Qualtrics

https://nyu.ca1.qualtrics.com/Q/EditSection/Blocks/Ajax/GetSurveyPrintPreview?ContextSurveyID=SV_3qnFSAb1CGJoGTY&ContextLibraryID=UR_5vtNKXQ66a1jEvb



How important is going out for walk?



How often do you go for a walk?

	Less than twice a week	2-6 times a week	once per day	More than once per day
Before COVID	○	○	○	○
During COVID	○	○	○	○

How much time do you spend walking outside per day?

	Less than 1 hour	1-2 hours	2-3 hours	more than 3 hours	None at all
Before COVID	○	○	○	○	○
During COVID	○	○	○	○	○

Choose your TOP 3 purposes for walking in the city?

	Commuting/getting to destination	Shopping	Strolling	Exercisin
efore COVID	☐	☐	☐	☐
uring COVID	☐	☐	☐	☐

Please specify other purpose:

Choose the type of pedestrian-priority streets that you mostly interact:

	Pedestrian-only street/Open street (no automobile) 	Shared street (pedestrian, bikes & automobile (limited speed) together) 	Pedestrian plaza (more gathering/seating area) 
Before COVID	○	○	○
During COVID	○	○	○

Choose the type of pedestrian-priority streets you ***prefer to*** walk on:

	Pedestrian-only street/Open street (no automobile) 	Shared street (pedestrian, bikes & automobile (limited speed) together) 	Pedestrian plaza (more gathering/seating area) 
Before COVID	○	○	○
During COVID	○	○	○

Experiences continue

How do you usually interact with pedestrian-priority streets (shared / pedestrain-only streets / plaza)?

	Just passing by	Shopping	Stay and resting	Dining	Promenac
Before COVID	☐	☐	☐	☐	☐
During COVID	☐	☐	☐	☐	☐

Please specify other interaction (Before COVID):

Please specify other interaction (During COVID):

Are you willing to spend more time using pedestrian-priority streets to get to your destination?

- ○ Yes
- ○ No

Do you interact with pedestrian-priority streets on purpose?

- ○ Yes
- ○ No

Briefly explain why and how do you interact:

The next section asks you about your experiences with pedestrain-priority street during COVID-19

Do you have more interactions with pedestrian-priority streets during COVID 19?

- ○ Yes
- ○ No
- ○ Maybe

What type of pedestrian-priority streets (shared/only/plaza)?

☐ Pedestrian-only street/Open street (no automobile)

☐ Pedestrian plaza (more gathering/seating area)

☐ Shared street (pedestrian, bikes & automobile (limited speed) together)

Do you think these streets help you to interact with public spaces during COVID 19?

- ○ Yes
- ○ No

Briefly elaborate why and how:

Do you drive?

- ○ Yes
- ○ No

Have you ever experienced any inconvenience due to the pedestrian-priority streets when you are driving?

- ○ Yes, briefly elaborate
- ○ No

Do you feel the condition get worse during COVID?

- ○ Yes
- ○ No

Design

This section ask you about design of pedestrian-priority streets

Do you have pedestrian priority streets near your living space?

- ○ Yes
- ○ No

How do you feel about having them?

Do you wish to have more built? Why?

What do you think are the TOP 4 problems of current NYC's streets?

- ☐ Narrow path
- ☐ Overcrowding
- ☐ Safety in relation to traffic (automobile/bicycle)
- ☐ Lack personal sense of safety (e.g lack of light)
- ☐ Barriers to pedestrian movements and accessibility
- ☐ Dirty streets
- ☐ Unattractive streets (e.g lack of shades, seating, plants)
- ☐ Other

Rank the attributes below (from most to least important) for pedestrian-priority streets?

	1	2	3	4	5	6
Safer, stay away from traffic	○	○	○	○	○	○
Better walking experience	○	○	○	○	○	○
Recreational purpose (e.g shopping)	○	○	○	○	○	○
Social interaction with others	○	○	○	○	○	○
Better outdoor dining experience	○	○	○	○	○	○
Other	○	○	○	○	○	○

Should bikes enter pedestrian-priority streets?

- ○ Yes (even the cyclist is riding the bike)
- ○ Yes when cyclists only walk their bikes
- ○ No, under any circumstances

Will you support more pedestrian-priority streets being built in NYC (even if these streets might take over the motorways)?

- ○ Yes
- ○ No

What do you want to suggest/change regarding the pedestrian-priority streets in your city?

Do you have any advice for our survey?

Do you have any advice for our survey?

Demographics

What's your gender?

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say

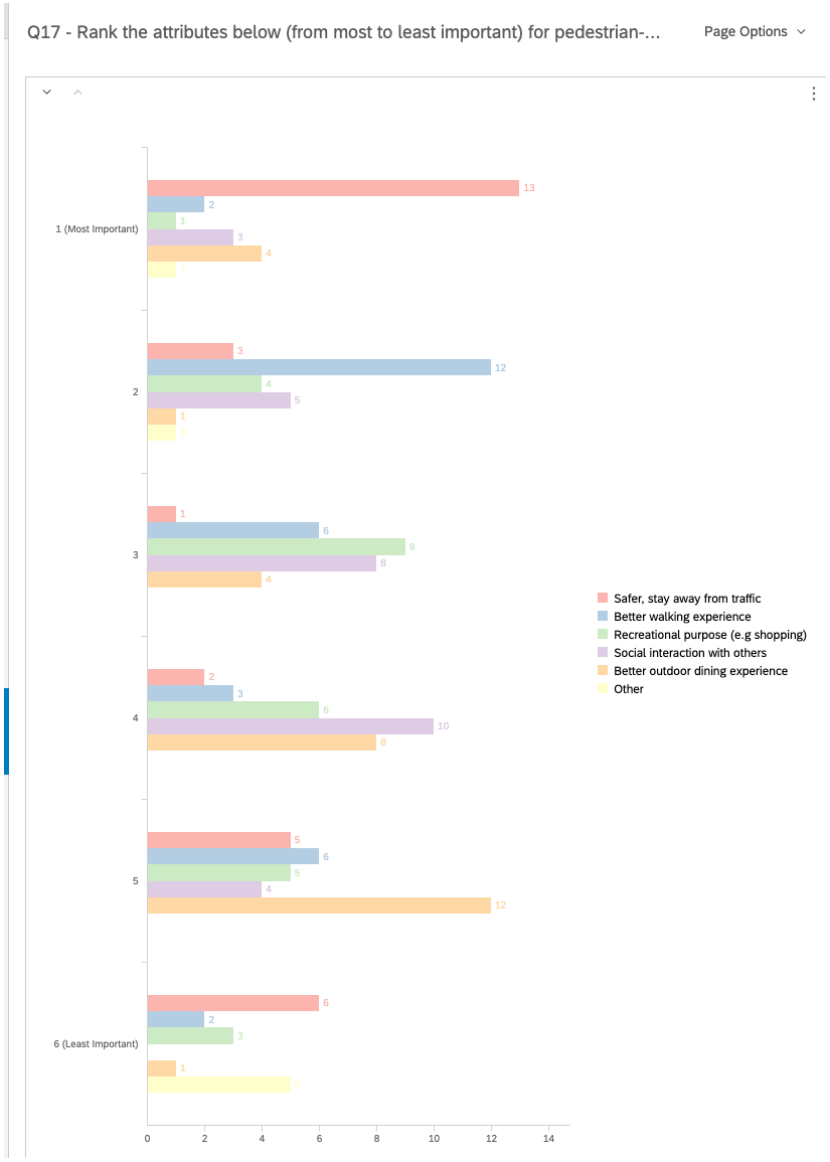
What's your age?

- ○ Under 18
- ○ 18-24
- ○ 25-34
- ○ 35-44
- ○ 45-54
- ○ 55-64
- ○ > 64

What's your occupation?

- ○ Student
- ○ Employed for wages
- ○ Self-employed
- ○ Looking for work
- ○ Out of work (not looking for work)
- ○ Homemaker
- ○ Military
- ○ Retired
- ○ Unable to work
- ○ Prefer not to say

Full results of the important attributes for pedestrian-priority streets



Research Process Reflections

We feel like our research questions can be improved to get better results. Some definitions of the choices were not specific enough, which leads to misinterpretation between the participants and us. For example, in the purpose of going out, we listed shopping as one of the purposes. Our intention was that the shopping here contains a variety of types of shopping: shopping for apparels, foods, groceries, etc. While the participants gave us responses like shopping for groceries. We also encountered a hard time coding the answers of "which neighborhood do you live in NYC". The participants gave us various answers ranging from a specific zip code like 11220 to a whole county like Brooklyn. The inconsistency of the geographical levels of the responses left us a hard time geocoding the results. We may have just asked for a specific zip code or the county. The survey was a bit long and a lot of surveys were left unfinished. We may also want to drop some unnecessary questions that we found not really helpful in answering the research questions.