

The background image shows a lush green park with various trees, including a prominent palm tree in the center. In the background, a modern white building with a red roof is visible under a clear blue sky. The foreground features a large, thick tree trunk with many aerial roots on the right side.

# The impact of the COVID-19 pandemic on the health and well-being on people's use and perception of Tunisian green spaces

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# PLAN

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- **Methodological approach used**
- **Results**
- **Discussion and conclusion**

# Background / Goals

- Green space's relevance in supporting healthy living in urban environments has recently resurfaced as a topic of discussion (WHO, 2016).
- The importance of green space to one's health has long been acknowledged, and it was one of the driving motivations for the 19th century's urban park movement (Schuyler, 1988).
- A novel coronavirus (SARS-CoV-2) and related sickness (COVID-19) were discovered in China in December 2019 and soon spread over the world as a pandemic (Wang et al., 2020).
- The fast rise in infections and deaths put public health systems throughout the world in jeopardy, compelling governments to take extraordinary steps to manage the epidemic (Pouso et al, 2021).
- In these unique conditions, being able to maintain contact with nature from home may have had a significant positive impact on mental health (Collado et al., 2017).

# Background / Goals

- While Tunisia is dealing with the second wave of COVID-19 and the potential for new developing diseases to emerge soon, we need to better understand the elements that aided mental health during the lockdown so that measures and strategies may be better created.
- The aim of this study is:
  - (1) to investigate the impact of green spaces on citizen's well being during the health crisis period in a coastal city in Tunisia
  - (2) And to identify the link between the well-being of inhabitants and vegetation contact.

# Methodological approach used

## Study area

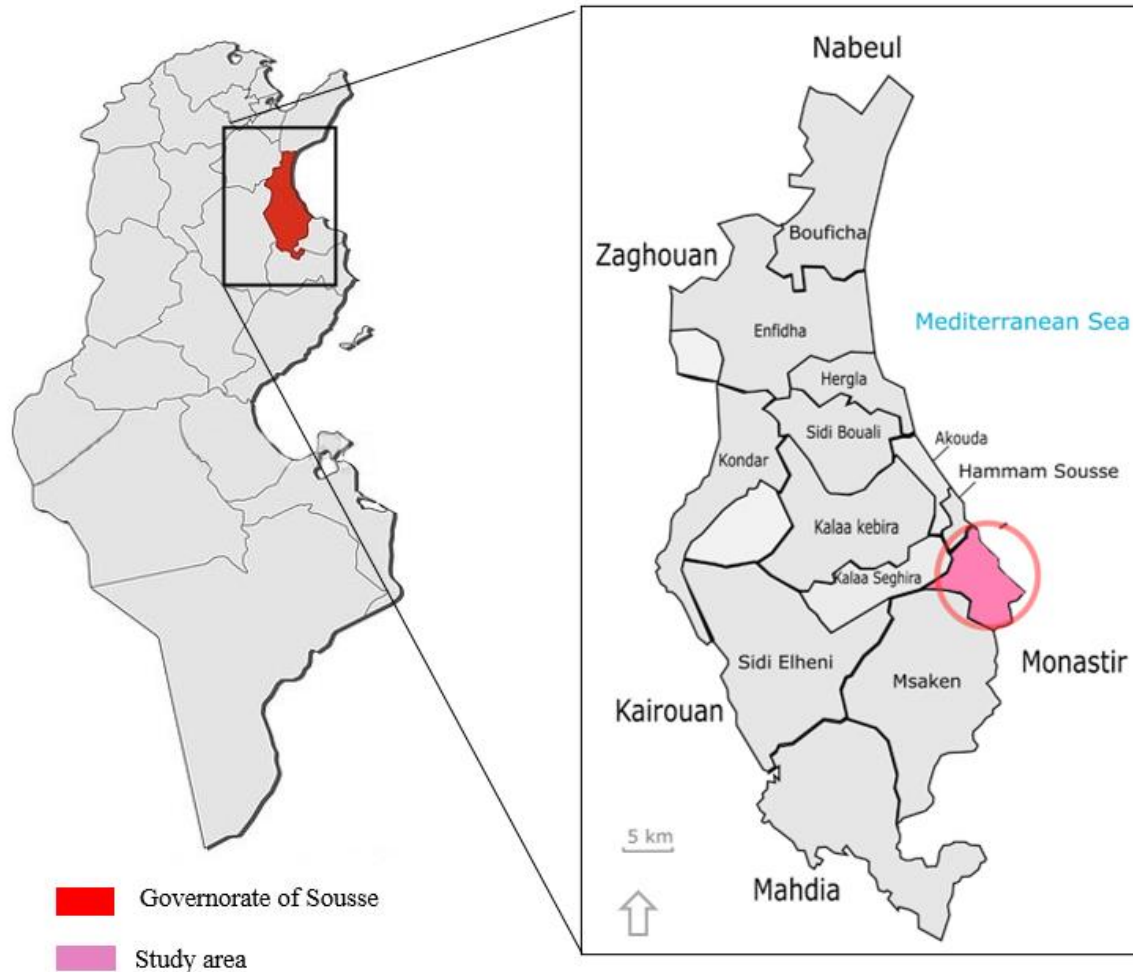


Localization map of Tunisia



# Methodological approach used

## Study area

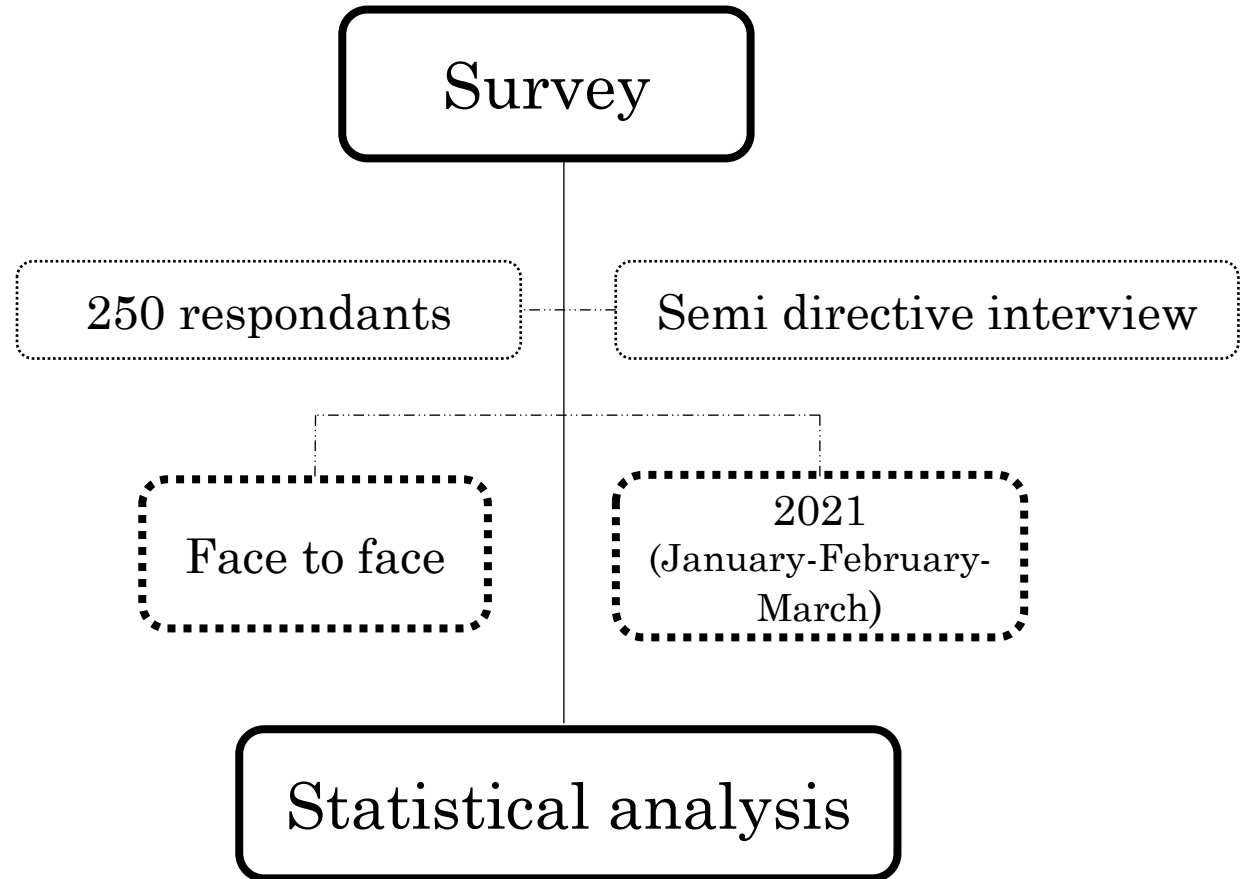


- Sousse : the centre-east of Tunisia.
- 5 districts : Sousse Medina, Sousse North, Sousse South, Sousse Jawhara and Sousse Riadh.
- stable and mild climate
- offering its inhabitants a context particularly conducive to living in the public space.

Fig . Localization map of the study area (@Rania Ajmi, 2021)

# Methodological approach used

- Survey of 250 city dwellers was conducted in 2021
- After the first lockdown in Tunisia (March-April 2020)
- Random sampling
- Quantitative and qualitative data
- Statistical data analysis with Excel and Rstudio



# Methodological approach used



**sexe? Districts? age? Socio-professional category ?  
Habitat typology?**

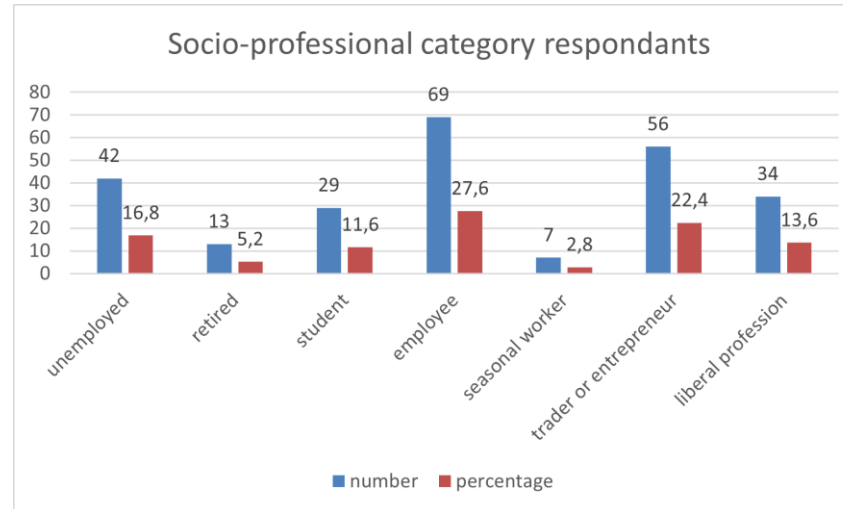
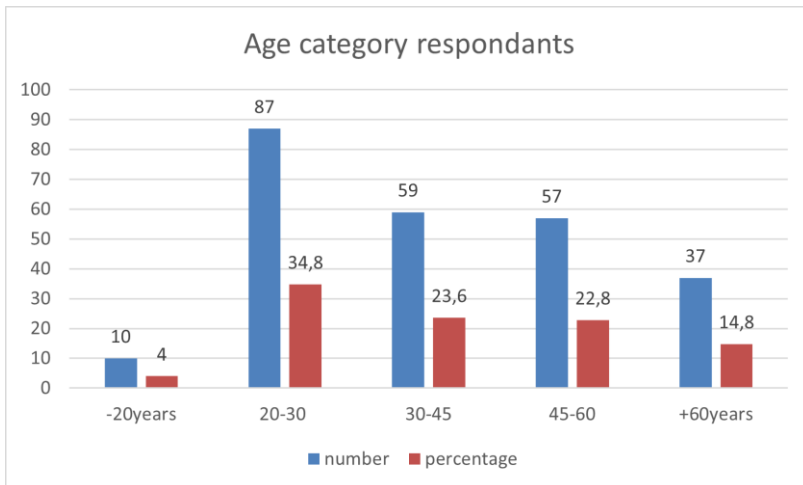
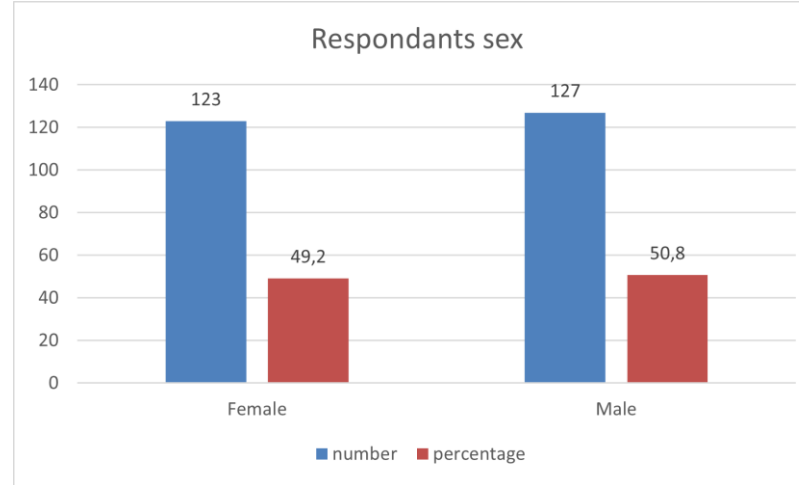
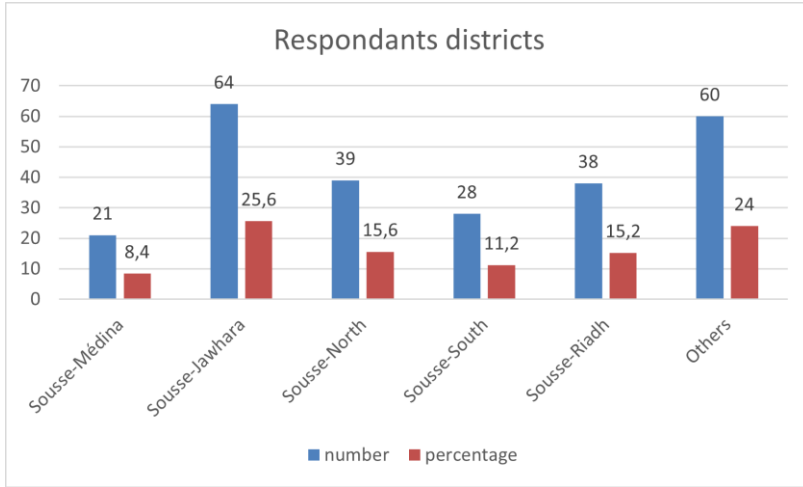
**Anxiety and nervousity frequency before the lockdown?  
Anxiety and nervousity frequency during the lockdown?  
Going out during the lockdown ?  
Type of green spaces visisted during the lockdown?  
Frequency? Services?**

**Type of window view? Urban ? Mixed ? Natural?  
Frequency? Services?  
Direct impact of plants on their well-being ?  
Indirect impact of plants on their well-being?  
The need for plants during the lockdown to overcome the  
crisis situation of the pandemic ?  
Planning project for green spaces in the future?**



# Results

## Sampling

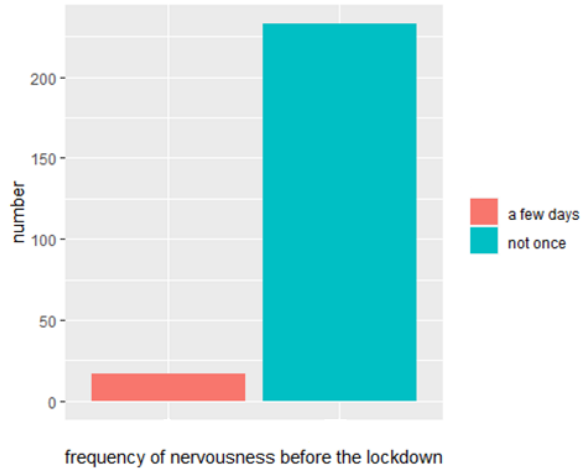


- Sousse Jawhara (25,6%) Sousse-North(15,6%), Souss-Riadh (15,2%), Sousse-south (11,2%)
- Female (49,2%) and male (50,8%)
- (20-30) 34%, (30-45) 23%, (45-60) 22,8, (+60 years) 14,8%
- Employee (27,6), trader or entrepreneur (22,4%), unemployed (16,8%)

# Results

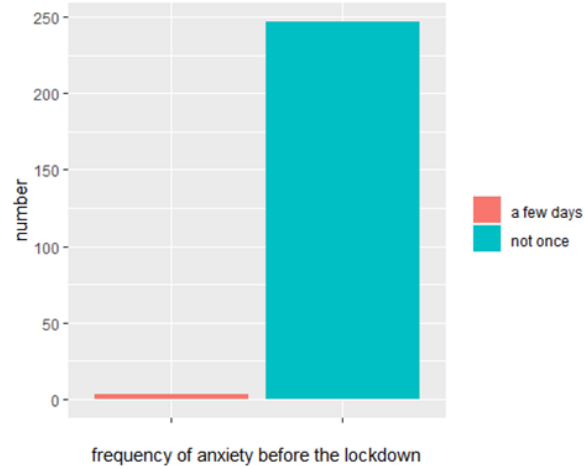
## Univariate and bivariate analysis

How many times did you feel nervous one month before the lockdown??



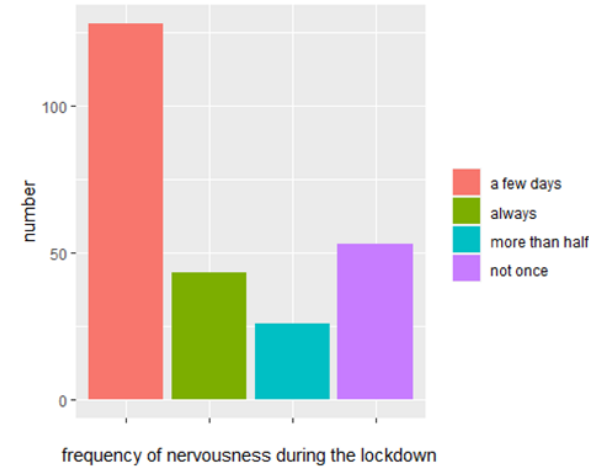
Graph 1

How many times did you feel anxious one month before the lockdown??



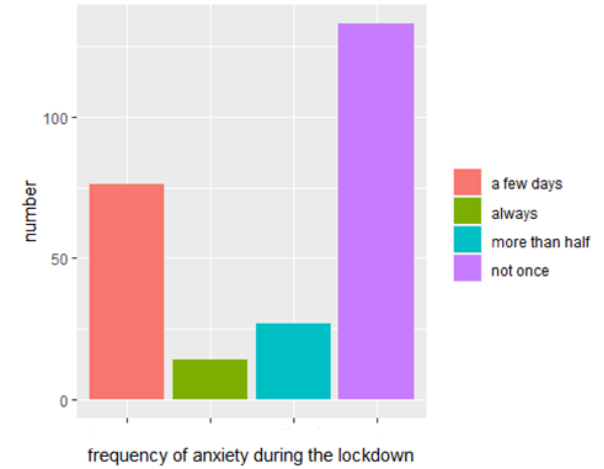
Graph 2

How many times did you feel nervous during the lockdown??



Graph 3

How many times did you feel anxious during the lockdown??



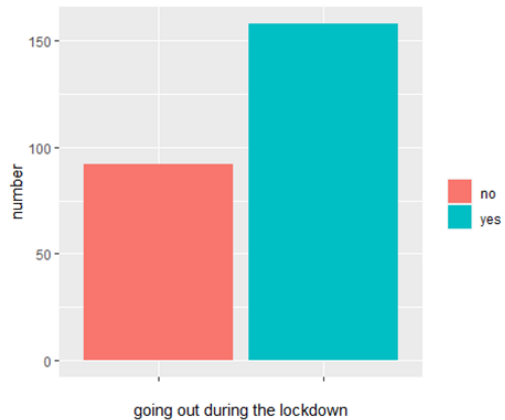
Graph 4

- One month before the lockdown, most of respondents did not once feel nervous (92%) or anxious (98%) (Graph 1 and 2).
  - During the lockdown, 50% of respondents were nervous a few days, 40% were always nervous and 10% were more than half of the lockdown period nervous (Graph 3).
  - 50% of respondents did feel anxious, at least once, during the lockdown.
  - 30% did feel anxious a few days, during the lockdown, 10% were anxious more than half of the lockdown period and 5% were always anxious (Graph 4).
- After the announcement of the first lockdown in Tunisia, most of people did feel nervous and anxious.

# Results

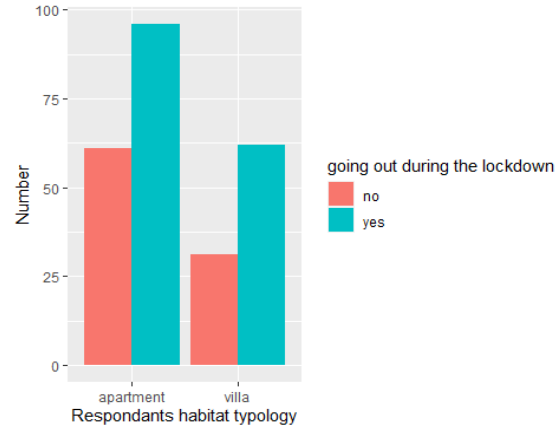
## Univariate and bivariate analysis

Did you go out during the lockdown??



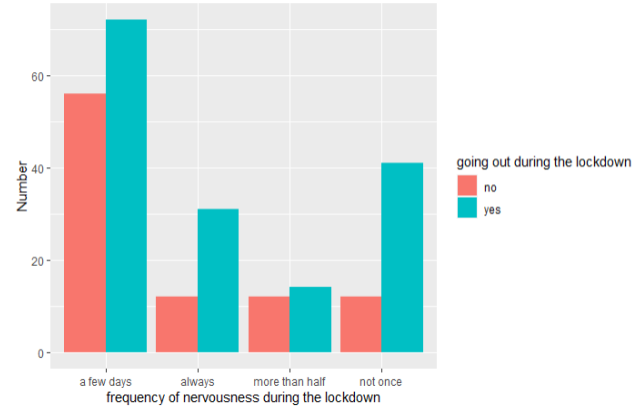
Graph 1

Did you go out during the lockdown??  
Typology of the habitat??



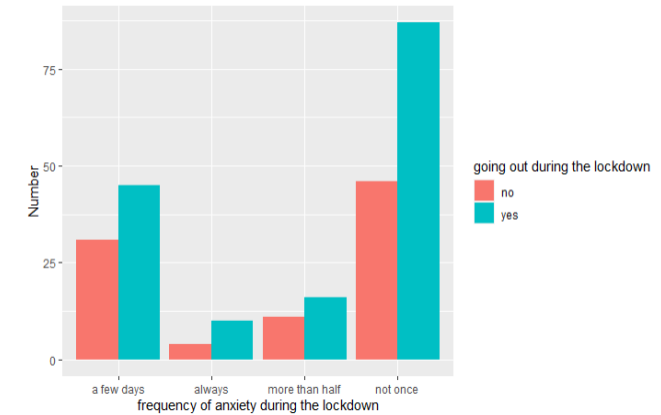
Graph 2

Did you go out during the lockdown??  
Frequency of nervousity during the lockdown??



Graph 3

Did you go out during the lockdown??  
Frequency of anxiety during the lockdown??

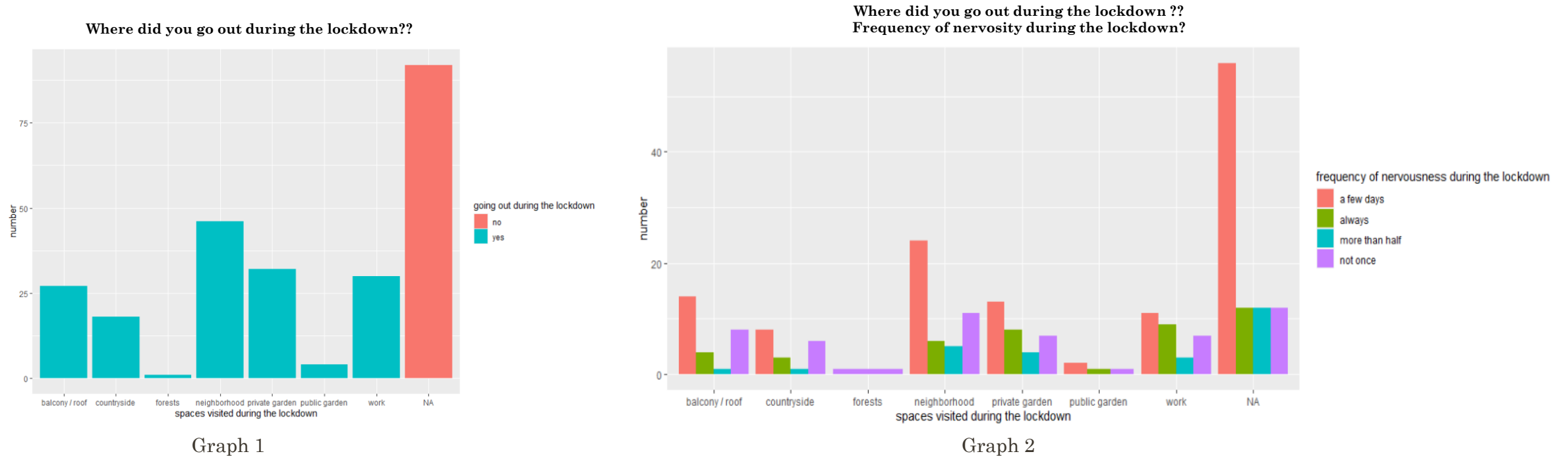


Graph 4

- According to the survey, 62% of inhabitants did go out, despite the lockdown announcement.
- From the graph 2, we can see that 60% of who did go out live in an apartment and 40% live in a villa. Indeed, inhabitants who live in a villa can go out to relax and take in some fresh air in their private gardens.
- The results show that people who never felt nervous or even for a few days, most of them left their homes. Nevertheless there is a group of people who have always been nervous despite leaving their homes, indeed the state of health crisis formerly influenced the psychological state of the inhabitants of Sousse.
- The reasons for which the inhabitants left during the confinement can be numerous. it is thus essential to identify where it went out and why to do it.

# Results

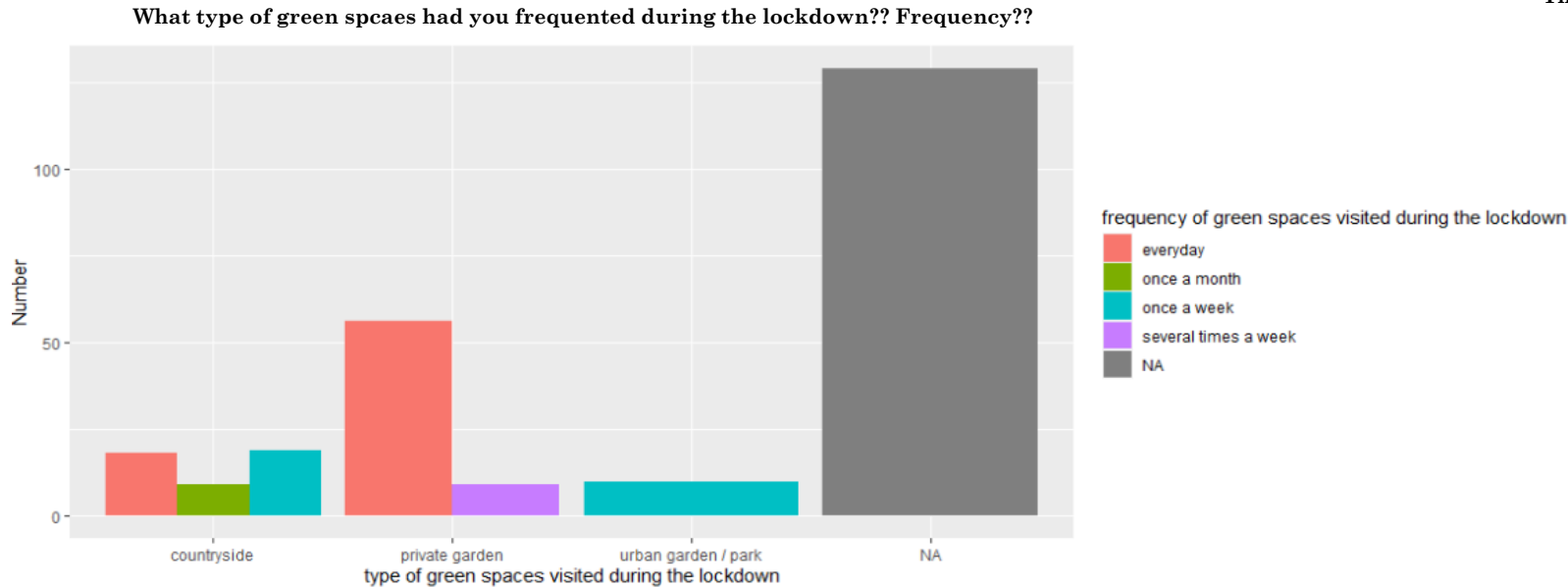
## Univariate and bivariate analysis



- Among the people who went out during the lockdown, 29% of them went out in their neighborhood to take in the fresh air, 20% went to their private garden, 18.5 % went out to work, 17% of them changed the air in their balconies or roofs of their houses, 12.5% went to the countryside while 3% of respondents went to public gardens or parks (Graph 1).
- From the graph 2, we notice that the people who frequented their private garden, 39% of them were nervous for a few days and 25% of them never felt nervous. While the people who went outside in their neighborhood, 52% of them were nervous for a few days, and 23% of them were never nervous during the lockdown period (Graph 2).

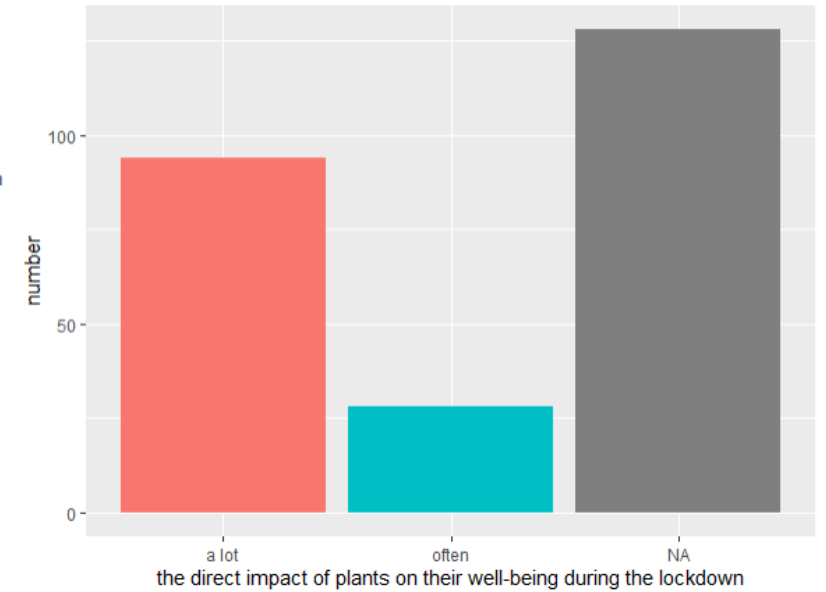
# Results

## Univariate and bivariate analysis



Graph 1

The direct contact with the green space during the lockdown, had helped you mentally overcome the situation ???



Graph 2

- Among the people who frequented the green space of Sousse during the lockdown, 85% of them frequented their private garden (mostly of them everyday), 35% went to the countryside but less often (mostly once a week), while 8 % frequented the public gardens / parks once a week (Graph 1).
- From the graph 2, we notice that the people who had direct contact with green spaces, most of them (75%) it had helped them a lot to overcome the situation mentally (Graph 2).

# Results

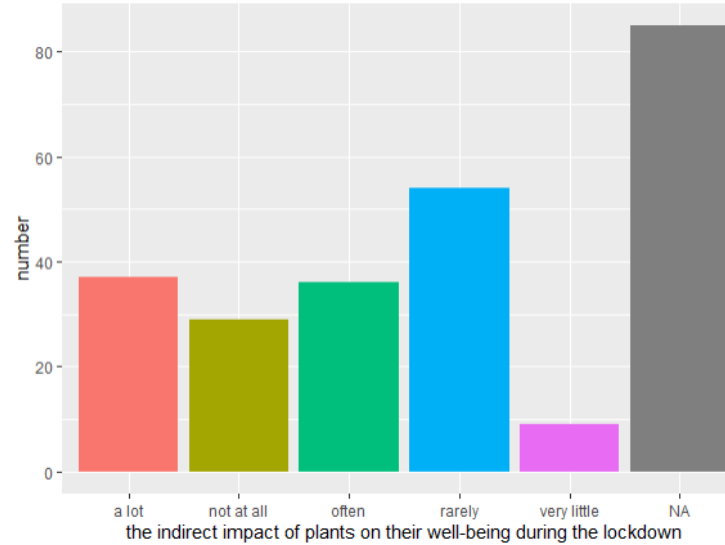
## Univariate and bivariate analysis

What is the type of your window view?? Natural, mixed or urban?



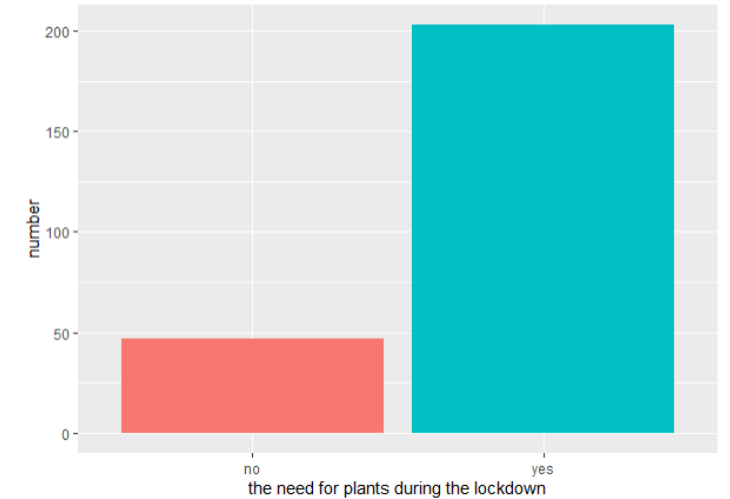
Graph 1

The indirect contact of plants, had it helped you during the lockdown to overcome the situation???



Graph 2

Did you feel the need of green spaces during the lockdown?



Graph 3

- Among the people who had open the windows with mixed views during the lockdown, 50% of them opened it to ventilate the room, 33% opened it to observe the neighborhood nature and to ventilate the room, while 17% opened it to rest and ventilate the room (Graph 1).
- From the graph 2, we notice that the people who had indirect contact with green spaces, 32% it had rarely helped them to overcome the situation, 22% it helped them a lot, while 17% the indirect contact did not help them to overcome the crisis (Graph 2).
- 80% of the respondents declare that they felt the need for vegetation and green spaces during the difficult periods related to the COVID and most of them proposed to create more public green spaces in their neighborhoods (Graph 3).



# Discussion and conclusion

- Green space's relevance in supporting healthy living in urban environments has recently resurfaced as a topic of discussion (WHO, 2016). And especially, after the appearance of the COVID pandemic many researchers have studied the link between the green spaces and the well-being of inhabitants.
- To conclude, These findings show the importance of urban green spaces and their impact on the inhabitants well-being.
- These results have also implications for public policy, and they might help UGS take part in urban areas during times of crisis, helping people to maintain better mental health and to rethink the planning of the city of tomorrow.
- Further analysis of the survey should be done, in particular the Multiple Correspondence Analysis (MCA) and clustering, in order to have more significative findings and confirm the hypothesis.



Thank you !

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