

WINTER 2021

FACE TO FACE

Prosopagnosia Research Center at Dartmouth



OVERVIEW:

- Lasting Faceblindness due to COVID-19
- Beyond Face Processing in Developmental Prosopagnosia
- A Face Blind Senator

2020 was difficult for everyone in many ways. Our lab is working remotely for now, and Covid-19 regulations have significantly slowed our research. Nevertheless, we've been able to make some progress and want to give you an update of our recent research and prosopagnosia news. Hope you enjoy the content of this new issue, and we look forward to hearing your feedback and questions.

We want you!

If you're interested in participating in an upcoming study about developmental prosopagnosia or curious to learn more about it, live in the US or Canada, and are between 18-55 years old, please see more details on page 4.



Face Distortion

Have you ever heard of a face perception disorder called **prosopometamorphopsia (PMO)**? People who have PMO perceive all or part of faces as distorted. Interestingly, few of them have problems with face recognition. If you want to know more, please visit our new website: <https://facedistortion.faceblind.org/>

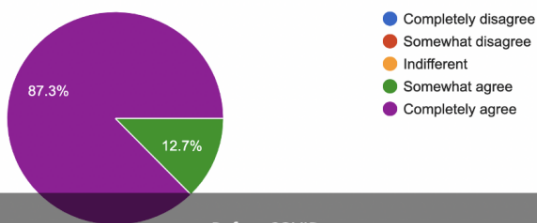
Lasting Faceblindness due to COVID-19

BY MARIE-LUISE KIESELER

The COVID-19 pandemic has affected everyone, but it had a specific impact on Annie (name changed), a 26-year-old portrait artist who contracted the disease in March 2020. Even though Annie recovered from COVID-19, she is suffering from adverse long-term effects that she first noticed when she went to meet her family at a restaurant. She walked past them multiple times until her Dad called out to her. Annie was shocked because “My father’s voice came out of a stranger’s face”. She finds herself now relying on information other than the face of a person to identify them: their voice, their gait, their hair; something very familiar to everybody with prosopagnosia. She even had to change the way she approached drawing portraits but luckily found a way to adapt her process to continue working in her field of choice.

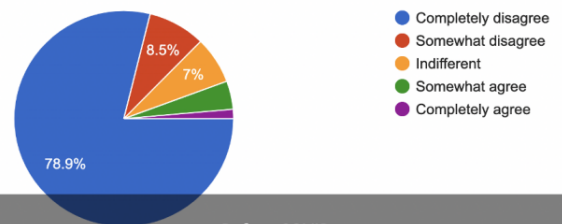
To this day, Annie experiences severe difficulty in facial identity recognition while showing normal object and scene recognition, as well as normal memory abilities. Annie is also experiencing difficulty navigating her environment following her COVID-19 illness. She now has to use navigation software to find her way even to her grocery store, she drops pins in Google maps to be able to find her car in a parking lot, and – in the beginning - she even had difficulty remembering where to find milk in her grocery store. (Continue on next page.)

I can visualize the faces of family members and close friends.
71 responses



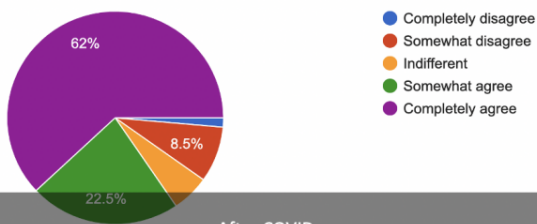
Before COVID

I have trouble perceiving emotions from faces.
71 responses



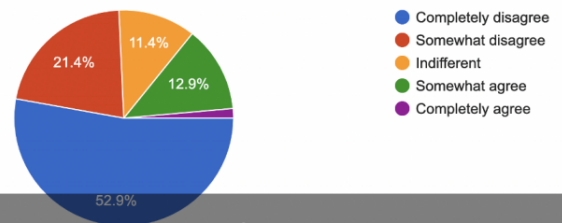
Before COVID

I can visualize the faces of family members and close friends.
71 responses



After COVID

I have trouble perceiving emotions from faces.
70 responses



After COVID

Figure 1: Ability to visualize familiar faces before contracting and after recovery from COVID-19. Before contracting COVID-19, 87% of our subjects did not report any difficulties in visualizing familiar faces (purple in top figure). This number went down to 62% after recovery from COVID-19 (purple in bottom figure).

Figure 2: Trouble perceiving emotions from faces before contracting and after recovery from COVID-19. Before contracting COVID-19, 79% of our participants reported that they do not have problem perceiving emotion from faces (blue in top figure). After recovery, this number decreased to 53% (blue in bottom figure).

After testing Annie, we developed a survey similar to the faceblindness survey that people in our database fill out. We then asked 71 COVID-19 survivors, many of them long-haulers who have experienced COVID-19 symptoms for months, to fill it out. We asked them to fill the survey out once for the time before they had COVID-19 and once when they were deemed “recovered” from COVID-19. It is important to note here that “recovered” from COVID-19 does not mean completely healthy but instead means that the patient is not shedding the virus anymore. When comparing the before and after data in our survey on how well people were able to perform certain tasks (e.g. recognizing their luggage; finding their way in a familiar environment), we saw that there were striking differences between people’s ability to perform these tasks before contracting COVID-19 and after recovery from COVID-19. (See Figures 1 & 2 on page 2 and Figures 3 & 4 below.)

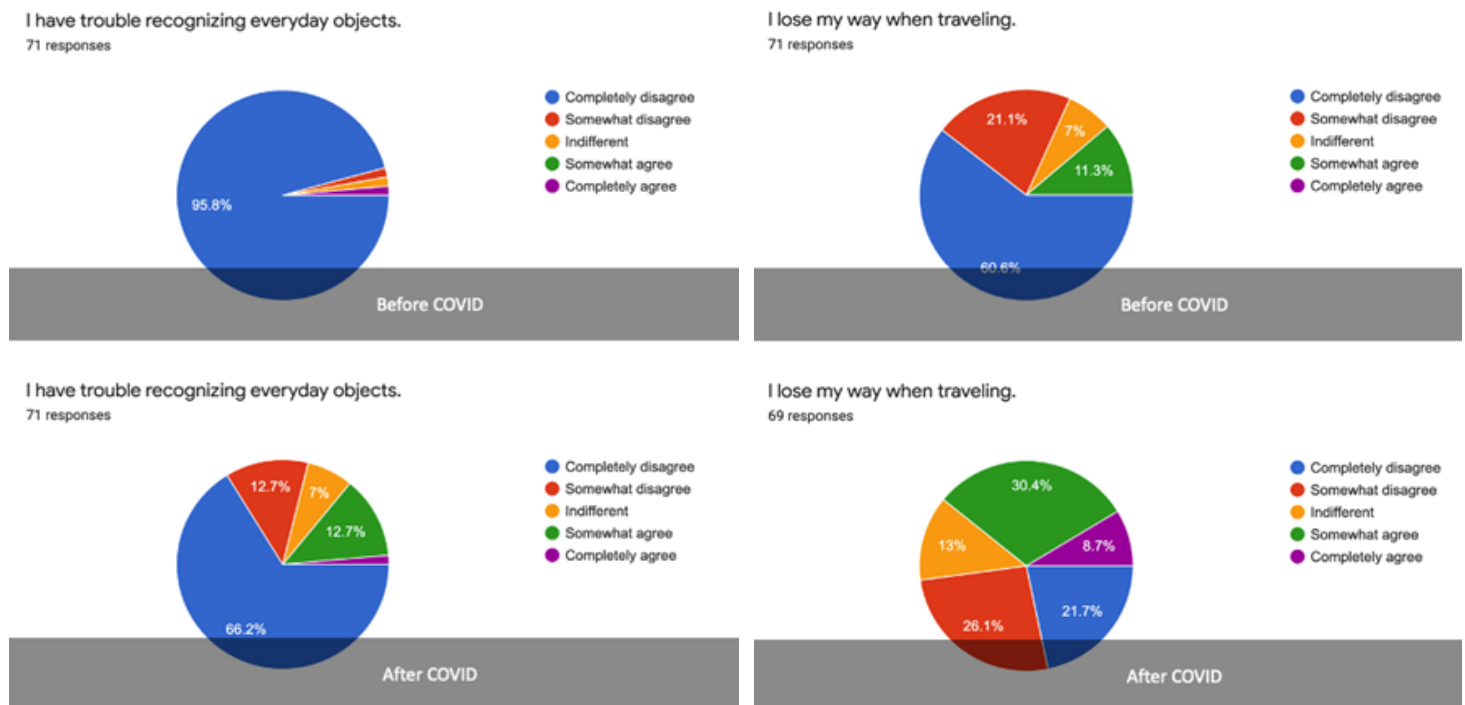


Figure 3: Difficulty in object recognition before contracting and after recovery from COVID-19. Before contracting COVID-19, almost 96% of the people in the study did not report any difficulties in object recognition (blue in top figure). This number plummeted to 66% after recovery from COVID-19 (blue in bottom figure).

Figure 4: Losing way when traveling before contracting and after recovery from COVID-19. Before contracting COVID-19, 61% of subjects reported that they do not lose their way when traveling (blue in top figure). After recovery, only 22% reported the same (blue in bottom figure).

Currently, there are few reports in the COVID-19 literature of severe, selective impairments such as Annie’s or those described by some of the people in our survey. We are currently working on a manuscript to remedy this.

If you or anybody you know has experienced persisting perceptual difficulties due to COVID-19, please encourage them to get in touch with us at soc.per.lab@gmail.com. We are trying to learn as much as possible about the effect COVID-19 can have on perception and cognition.

Beyond Face Processing in Developmental Prosopagnosia

Our lab at Dartmouth was awarded a grant from the National Institute of Health to investigate developmental prosopagnosia (DP). We hope to begin recruiting participants for the study in the next year. Our project is focused on two questions.

1. We will examine abilities other than face recognition (e.g., scene recognition, word processing, color perception) to better understand the extent of DP. Our preliminary data suggests that some people with DP, or developmental prosopagnosics (DPs), have difficulties restricted to faces while other DPs have broader difficulties with abilities such as navigation or object recognition (see figure on right), but we need to determine whether this

is true in a larger sample of participants.

2. We're going to look for subtypes of DP by contrasting the profiles we find in DPs who have scene processing difficulties with those whose scene processing is normal.

The project will involve a combination of computer-based behavioral testing and neural measures collected in an MRI scanner. We will carry out behavioral testing over the internet with around 300 DPs and then we'll invite 60 of them to Dartmouth for further testing. The neuroimaging measures will assess brain structure and brain activity (fMRI).

We're currently preparing our behavioral and neuroimaging tasks and hoping that the pandemic will be controlled so participants can travel to our lab. We will cover participants' travel expenses and will provide modest compensation for participation.

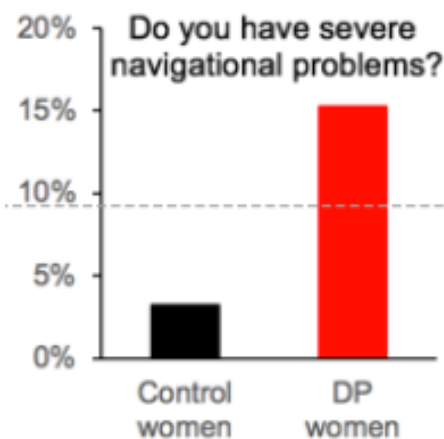


Figure: Rates of self-reported navigation problems are elevated in DP. The figure above compares responses from female DPs ($n=3548$, mean age=38.4, $sd=11.3$) and female controls ($n=94$, mean age=38.2, $sd=13.0$)

If you're potentially interested in participating in our study or curious to learn more about it, live in the US or Canada, and are between 18-55 years old, please let us know by emailing us at: soc.per.lab@gmail.com

A Faceblind Senator

John Hickenlooper has great difficulty recognizing faces, but that hasn't stopped him from being the mayor of Denver, the governor of Colorado, and a presidential candidate in the 2020 primaries. And on January 4, he was sworn in as a US Senator representing Colorado.

The article below discusses his prosopagnosia and how he handled it while campaigning during the presidential primaries.

<https://www.cnn.com/2019/03/13/politics/john-hickenlooper-face-blindness-prosopagnosia/index.html>

Prosopagnosia is not mentioned in the article below, but the article makes us wonder if Senator Hickenlooper is not the only person who has trouble with face recognition in the Senate.

https://www.nytimes.com/2012/03/10/us/politics/romneys-ceo-style-in-massachusetts-could-irk-lawmakers.html?_r=3&pagewanted=1&hp

