Update Post-Covid Condition study Bonaire & Saba

10-02-2022

Post Covid Condition (PCC, "Long covid")

From KCE review

- Median prevalence in 48 studies (most from Europe & US)
  - Hospitalized : 51% , 57% , 62% at 4-12 weeks, 3-6 months, > 6 months
  - Non-hosp. : 32% , 26% , 25% at 4-12 weeks, 3-6 months, > 6 months
- Wide range of symptoms; fatigue, dyspnoea, headache, cognitive disorders, anosmia most common
- Increased health care needs
- Impact on quality of life, work, education, and social life
- Gender disparity: men acute Covid ++, women PCC ++
- Few studies with control group, with asymptomatic Covid cases,with children, with HRQoL info

Castanares-Zapatero et al. Belgian Health Care Knowledge Center report 344

Characterisation

Symptoms at
6-12 months
in 20 studies

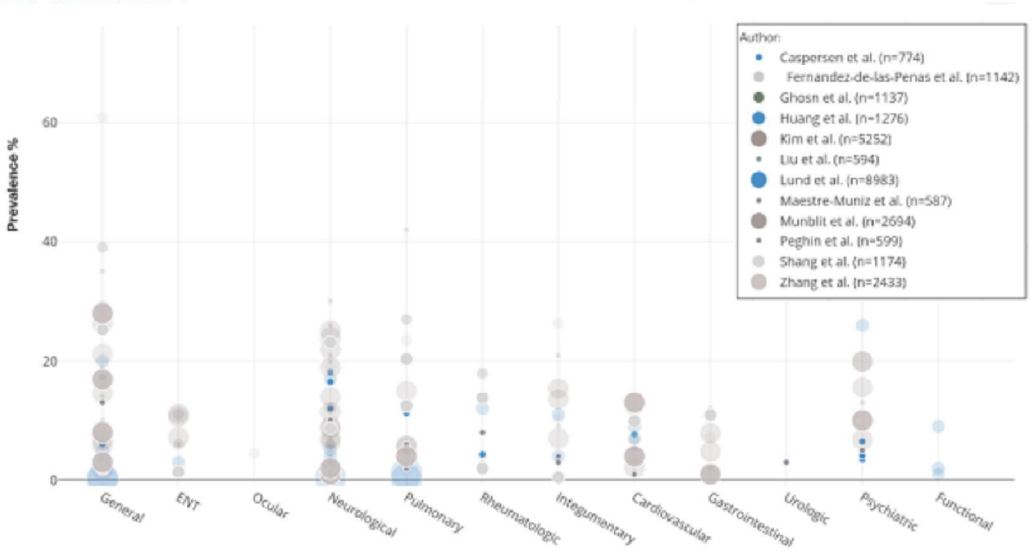
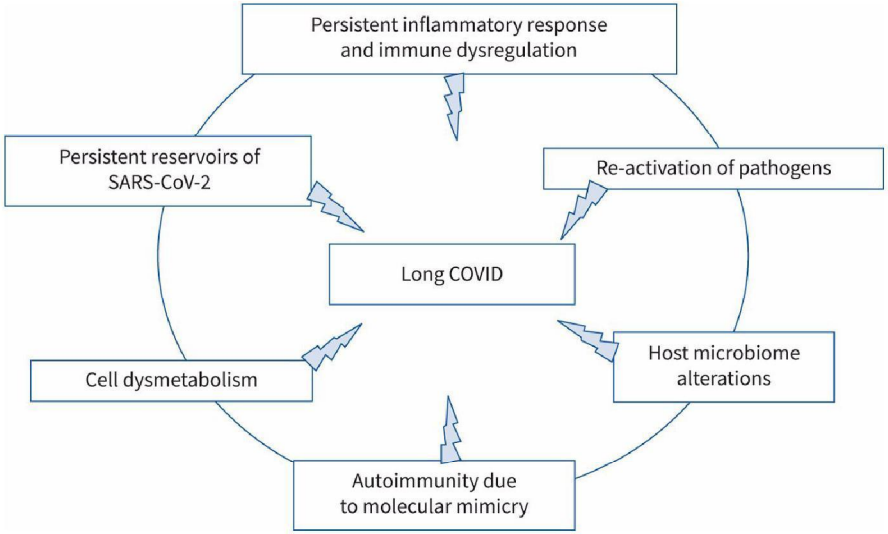


Figure 6. Prevalence of symptoms by symptom groups, bubble-size indicating number of participants (bubble size indicates study size, blue bubbles: controlled studies, grey bubbles: uncontrolled studies)

Flatby et al. Post Covid Condition Rapid Review. Norwegian Institute of Public Health

Hypothesised etiology



Ortona E, Malorni W, Eur Resp J 2022; 59: 2102245

Study aims

1. Measure frequency, symptoms, and duration of PCC among COVID cases
2. Assess impact of persistent symptoms on daily functioning and health-related quality of life
3. Describe support PCC patients need and receive from their (work) environment
4. Characterize healthcare needs of PCC patients
5. Assess which factors (incl. hospitalization) are associated with developing PCC
6. Determine which factors increase the severity of PCC

Definitions

- Community control: Person who self-reports s/he did not get (tested for) COVID-19 and has no COVID-related symptoms at the time of inclusion;

- Acute case: COVID-19 patient with a lab confirmed positive test and with all self reported symptoms attributed to COVID-19 lasting for less than 4 weeks;
- Post-COVID-19-condition (PCC) patient: COVID-19 patient with a lab confirmed positive test with at least 1 self reported symptom attributed to COVID-19 lasting for 4 weeks or longer;

Inclusion criteria and sampling

COVID CASES (N=600)

- Symptomatic
- Confirmed PCR / antigen positive
- Resident of Bonaire, Statia, Saba
- Willing & able to give verbal informed consent
- Phone number in HP-Zone
- Sampling: All hospitalized patients (n=57), rest of cases registered in HP-Zone until 1 October 2021 were randomly allocated to "phone-blocks"

COMMUNITY CONTROLS (N=200)

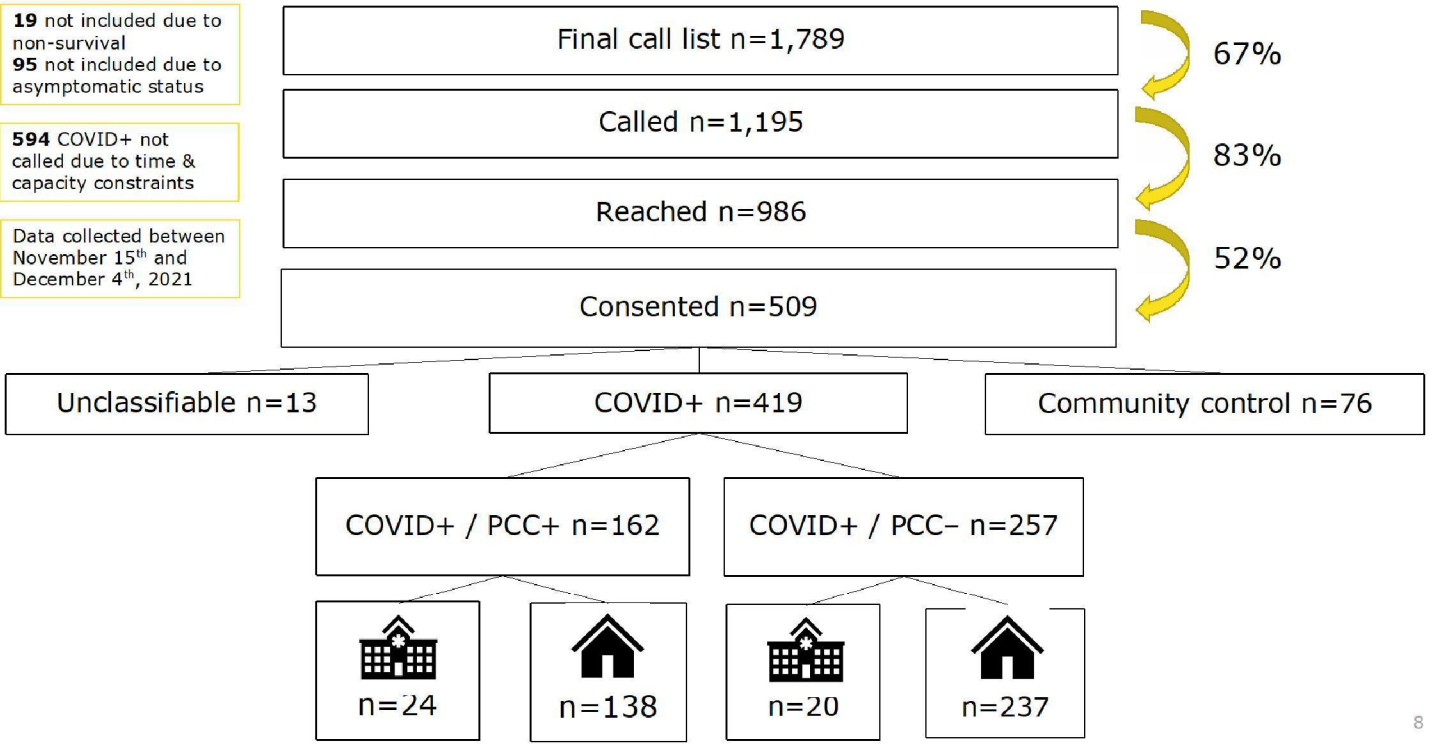
- Self-reported COVID negative throughout pandemic
- Resident of Bonaire, Statia, Saba
- Willing and able to give verbal informed consent
- Phone number received from case
- Sampling: Non-household members of COVID cases, with similar age / sex

Bonaire data collection

19 not included due to non-survival
95 not included due to asymptomatic status

594 COVID+ not called due to time & capacity constraints

Data collected between November 15th and December 4th, 2021



Saba data collection

19 not included due to non-survival
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594 COVID+ not called due to time & capacity constraints

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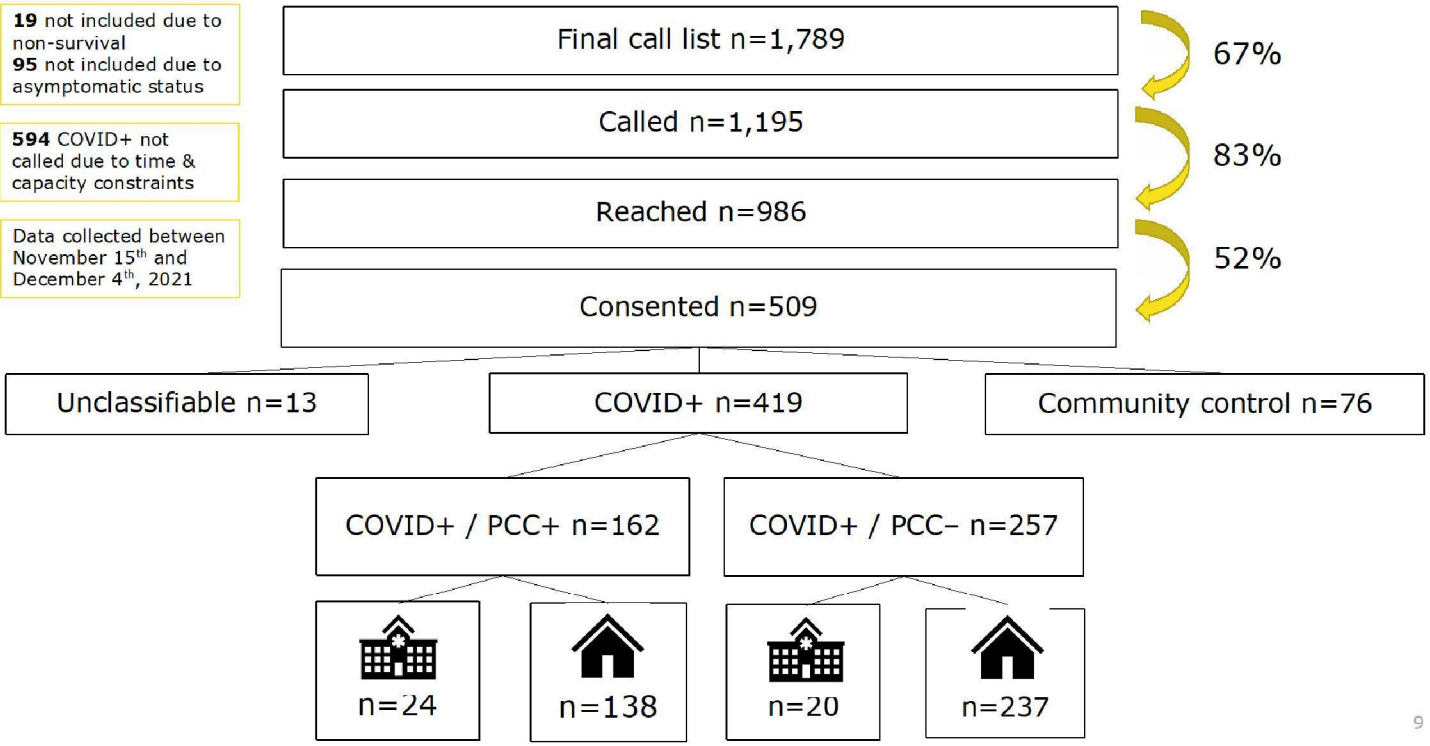
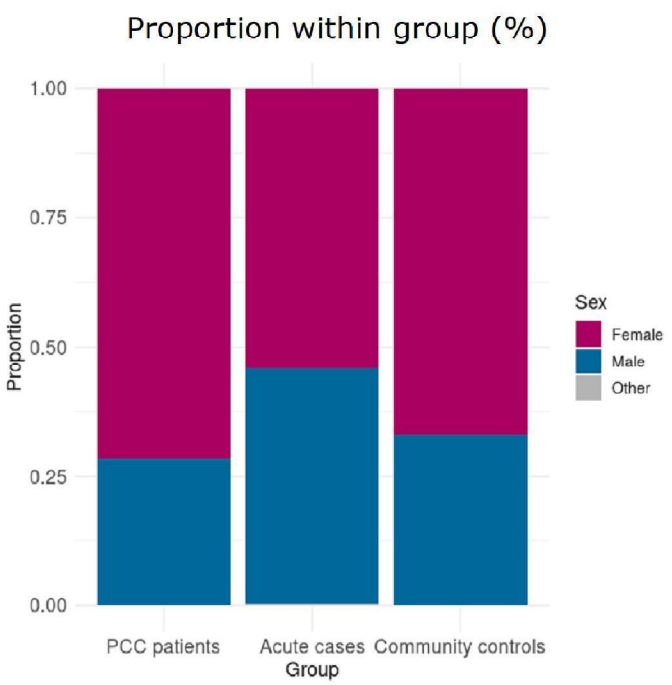


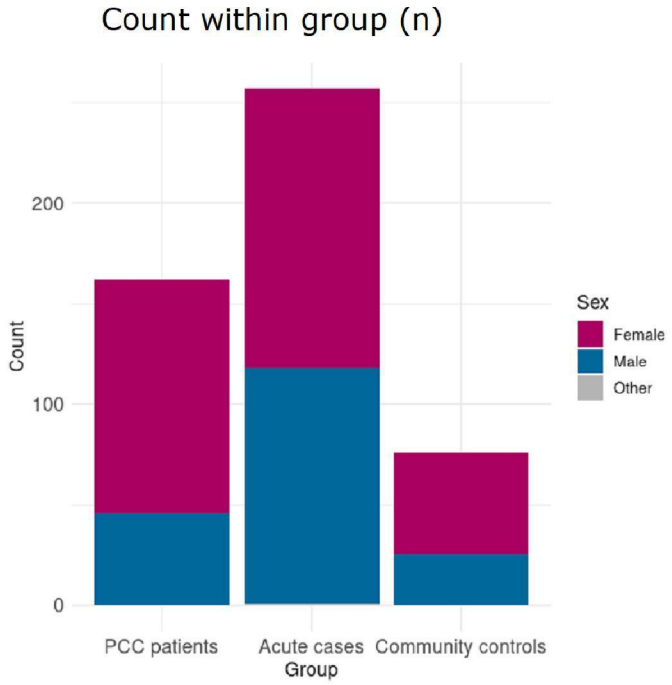
RQ1: How many symptomatic persons on Bonaire & Saba experience post-COVID-19 condition?

- 162 PCC patients among COVID-19+ cohort of 419 persons.
- Observed PCC prevalence **39%** among COVID-19+ cohort.
  - Expected prevalence beforehand was 20%
  - **55%** of hospitalized COVID-cases developed PCC, vs. **37%** of non hospitalized COVID-cases who developed PCC.

Subgroups stratified by sex

In totaal hebben er **306** vrouwen en **188** mannen meegedaan aan de studie.





Age distribution among subgroups

PCC patients

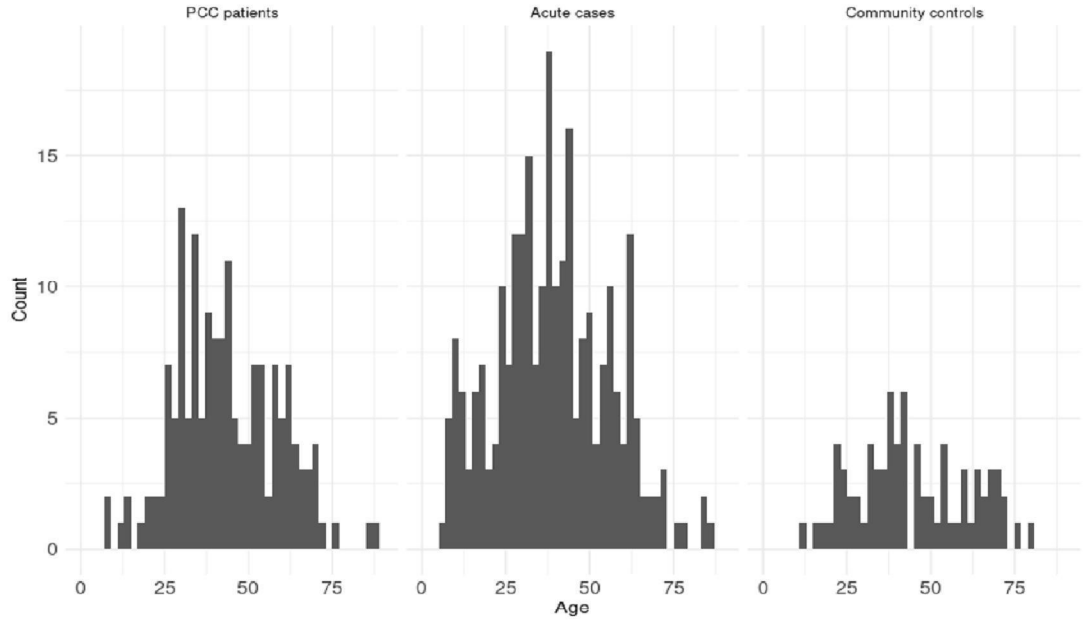
Mean 44.1 (SD 15.2)

Acute cases

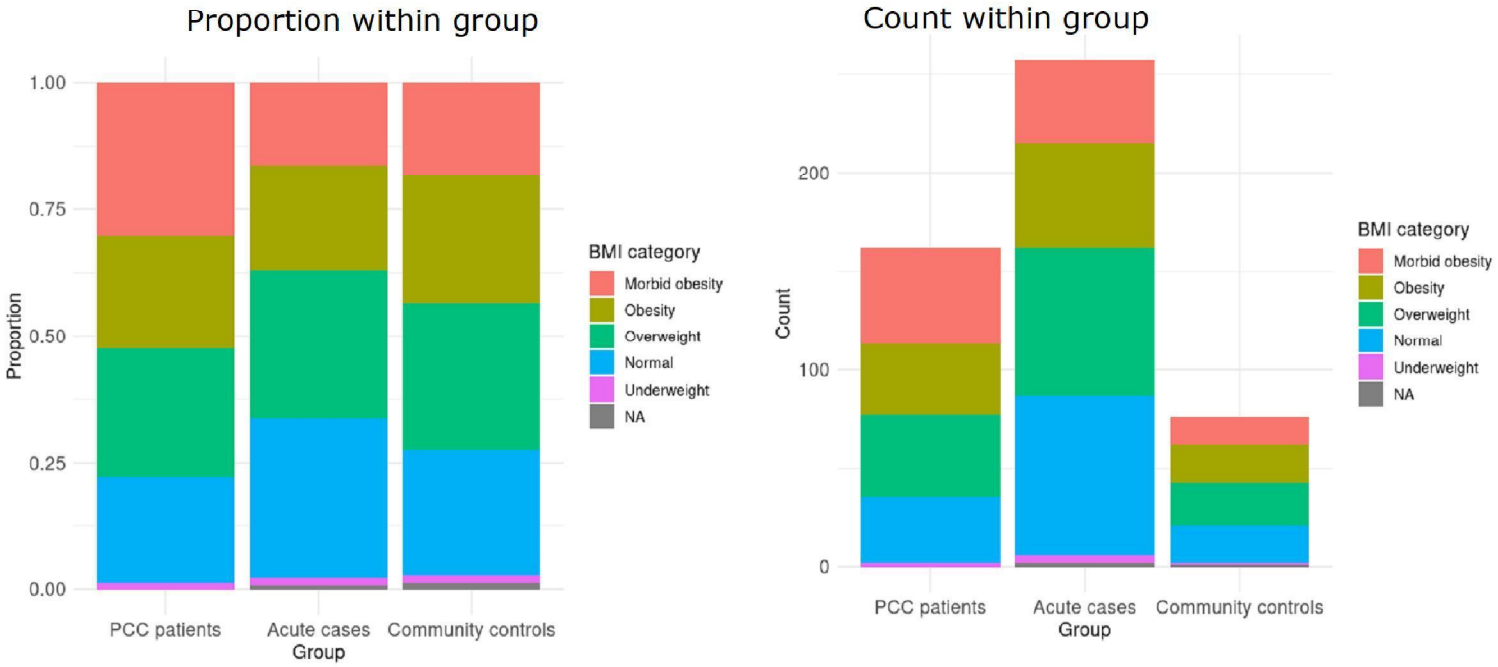
Mean 39.5 (SD 16.9)

Community controls

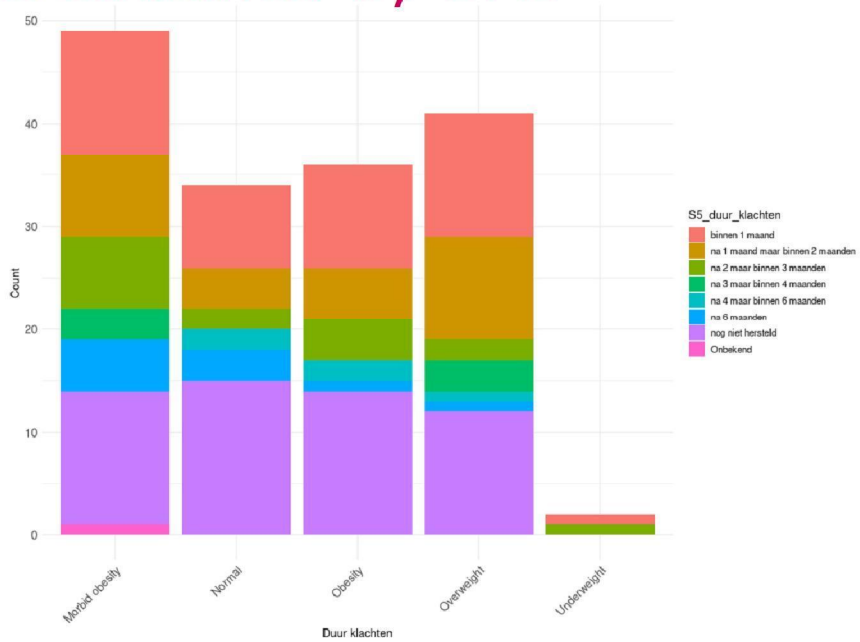
Mean 45.0 (SD 16.6)



Subgroups stratified by BMI



Subgroups stratified by BMI



BMI (numeric)

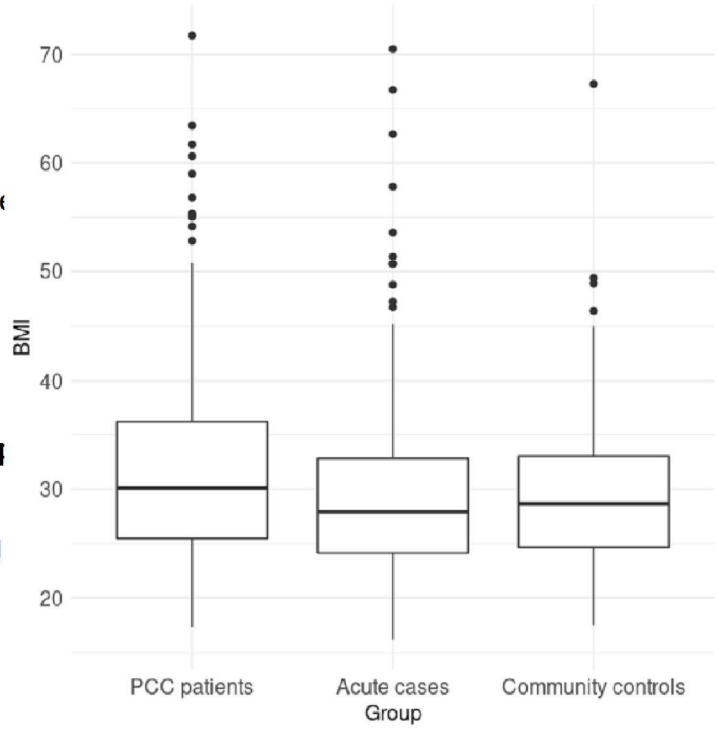
Mean BMI higher among PCC patients than acute

- Mean BMI 'community controls' = 31.3
- Mean BMI 'acute cases' = 29.6
- **Mean BMI 'PCC patients' = 33.5**

Significant difference in BMI between PCC p

(Kruskal- Wallis, P < 0.05).

No significant difference in BMI between other g



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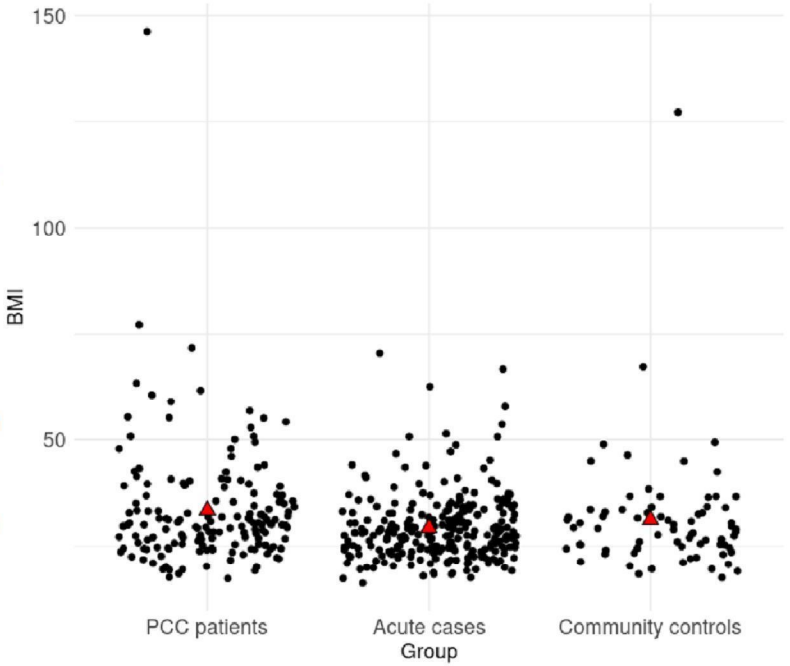
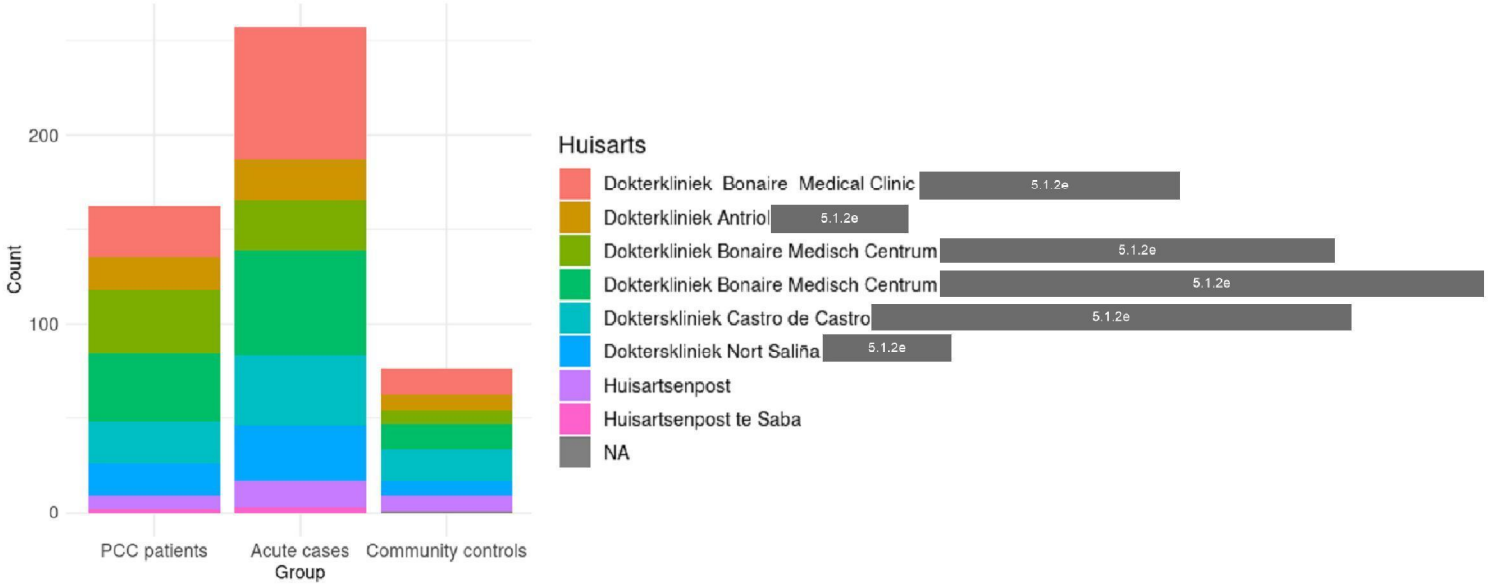
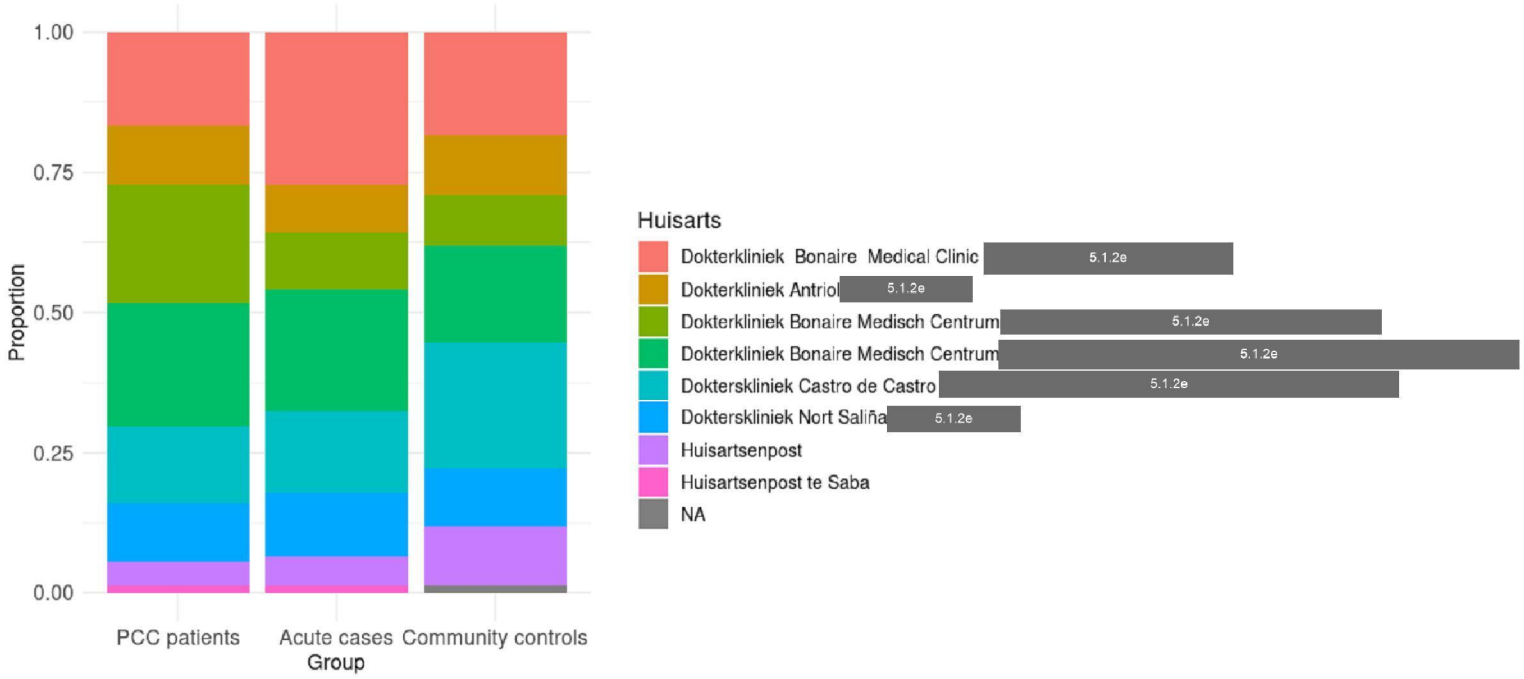


Subgroups by general practitioner (GP) practice




1.00
0.75
0.50
0.25
0.00
Proportion
PCC patients
Acute cases
Community controls
Group
Huisarts
Dokterkliniek Bonaire Medical Clinic
Dokterkliniek Antriol
Dokterkliniek Bonaire Medisch Centrum
Dokterkliniek Bonaire Medisch Centrum
Doktersкliniek Castro de Castro
Doktersкliniek Nort Saliña
Huisartsenpost
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RQ 2: Which persistent symptoms are most frequently reported?

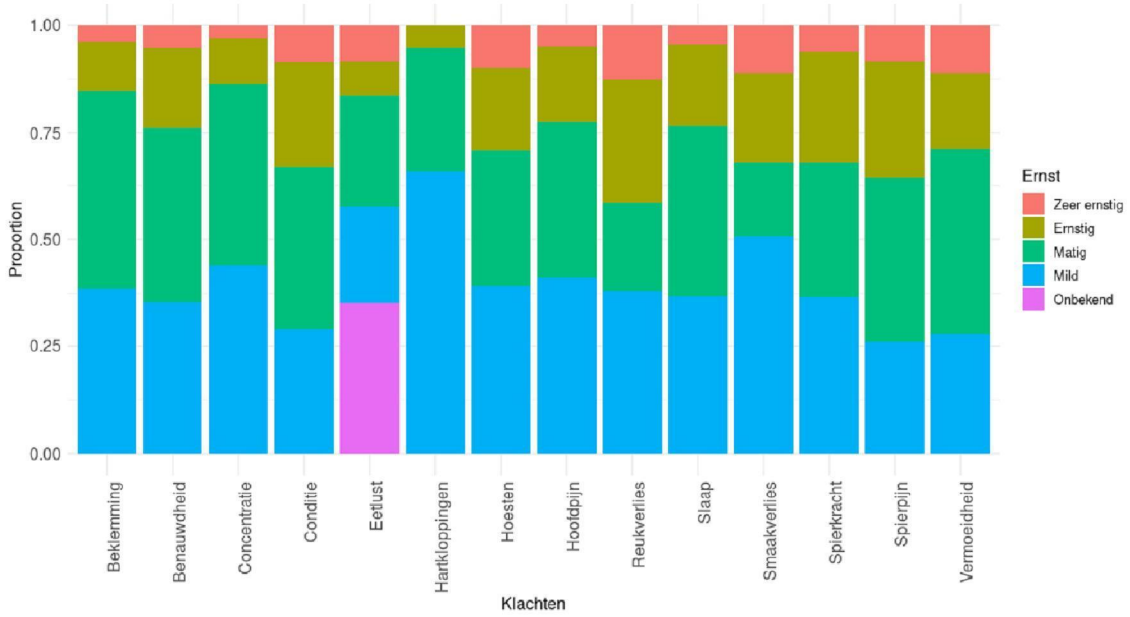
Rest symptoms among PCC patients

Most frequent rest symptoms among PCC patients:

Fatigue (67%)
29% (very) severe

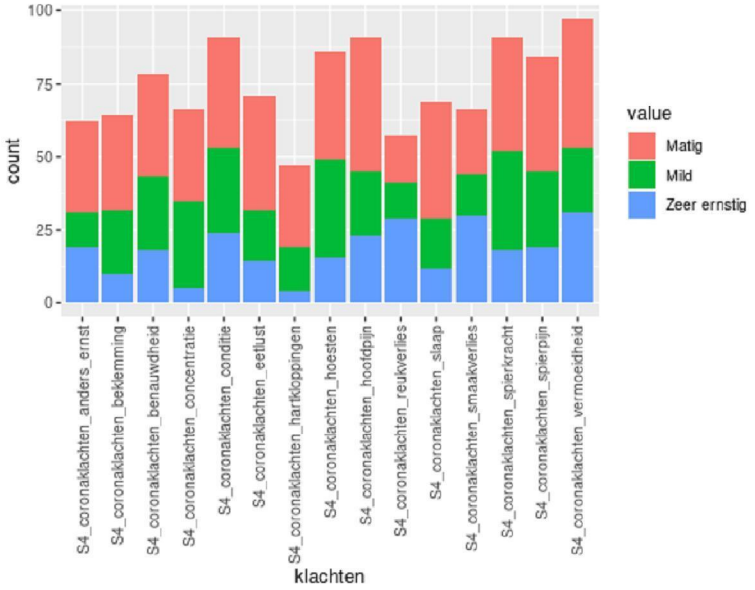
Worsened endurance (65%)
33% (very) severe

Shortness of breath (59%)
24% severe



COVID-symptoms PCC patients during acute phase

- Most frequent:
  - Fatigue
  - Headache
  - Loss of muscle strength
  - Reduced endurance



Severity of symptoms before COVID-infection & during data collection

Mean difference in self-reported severity of COVID-symptoms in the past week and before COVID-infection, on a scale of 0-10:

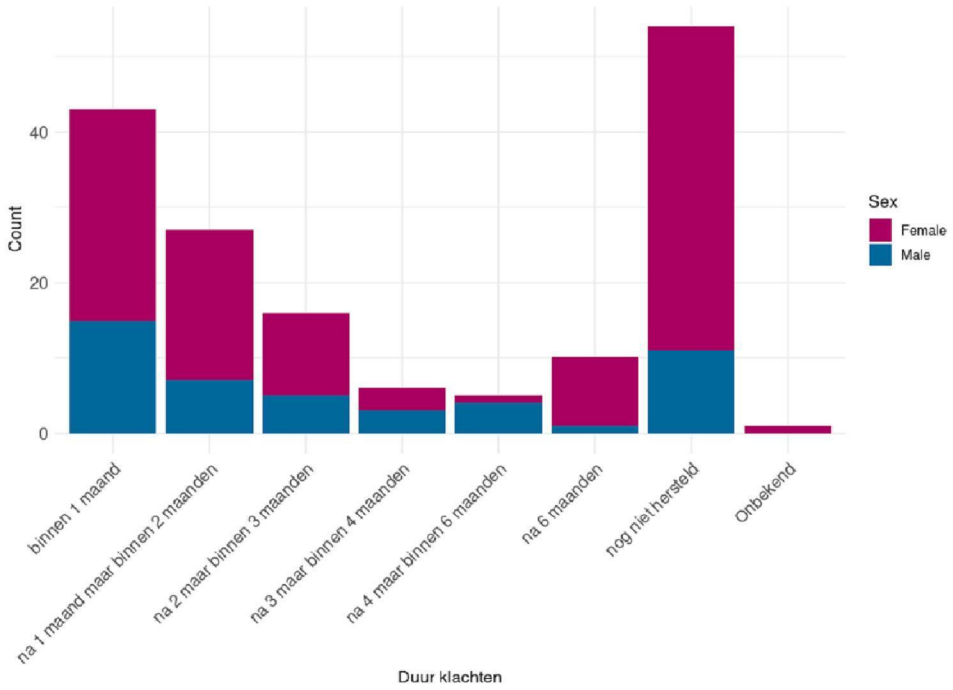
	PCC patients	Acute cases	Community controls
Fatigue	1.61 (SD 3.51)	0.18 (SD 2.57)	0.03 (SD 1.95)
Pain	0.91 (SD 3.15)	-0.02 (SD 2.21)	-0.17 (SD 1.52)
Brain fog	0.29 (SD 2.78)	0.00 (SD 2.08)	0.07 (SD 1.49)
Shortness of breath	0.88 (SD 3.02)	-0.10 (SD 2.29)	-0.20 (SD 1.36)

RQ 3: How long do people continue to experience symptoms of COVID-19?

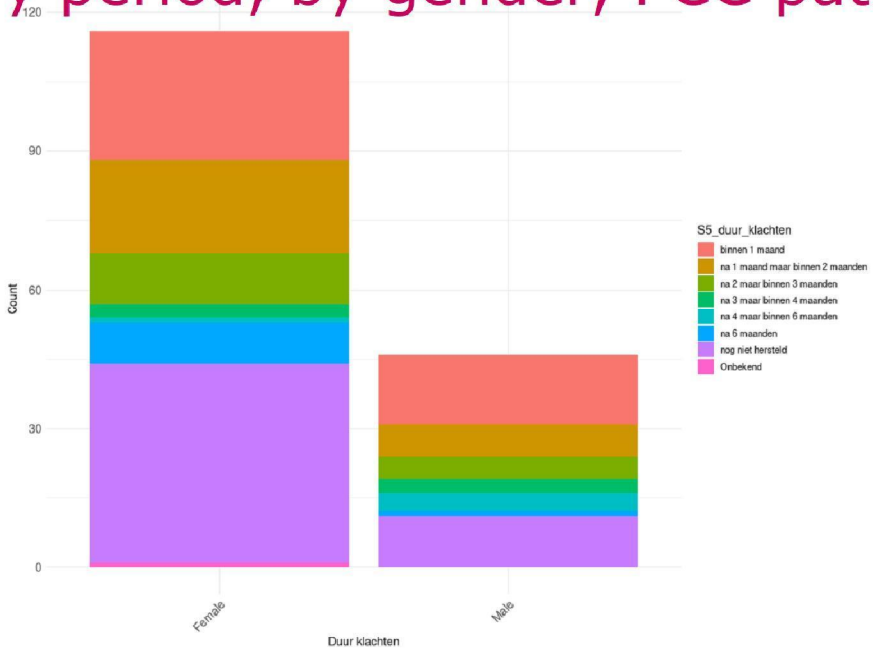
Recovery period, by gender, PCC patients

Period between data collection and onset date for PCC patients who have not yet recovered:

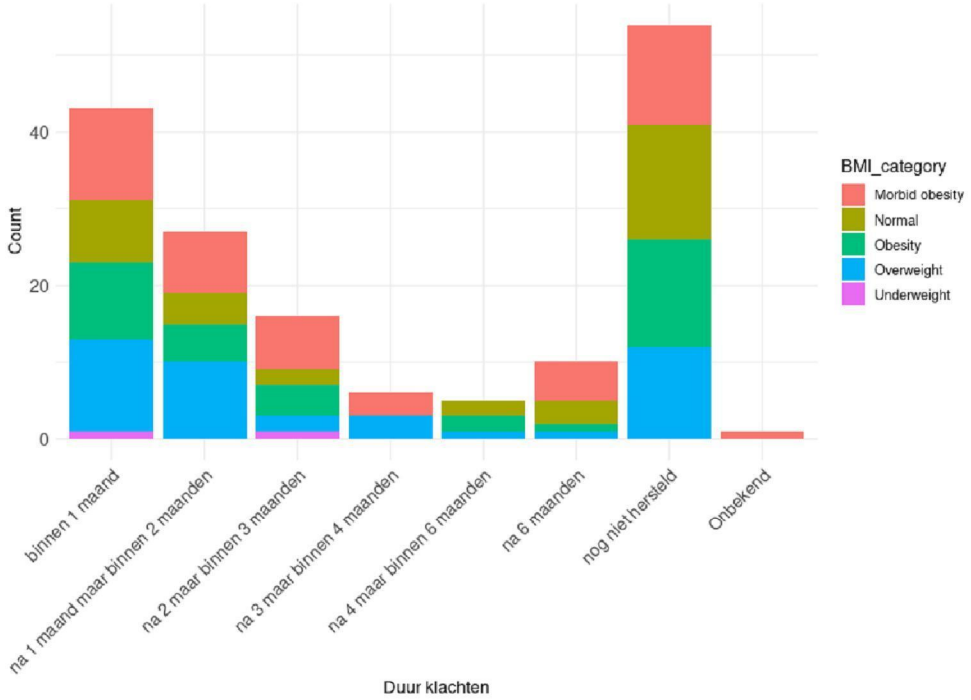
Median 249 days
IQR 30 days



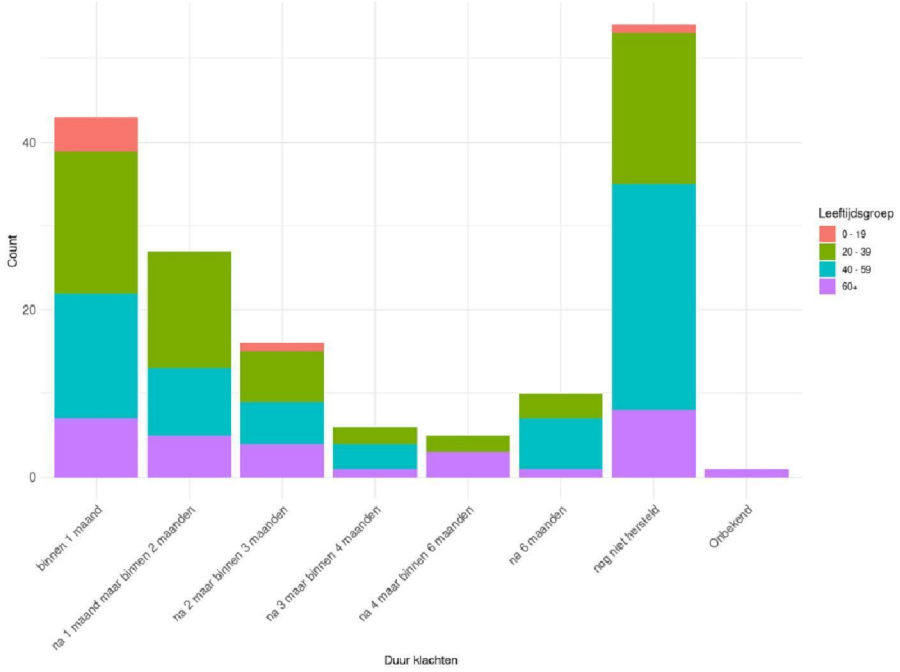
Recovery period, by gender, PCC patients



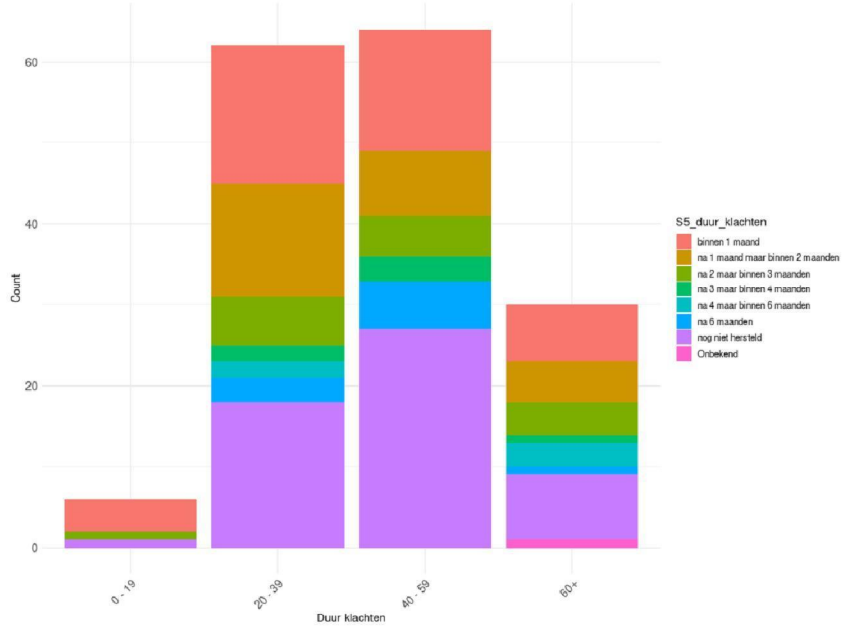
Recovery period, by BMI, PCC patients



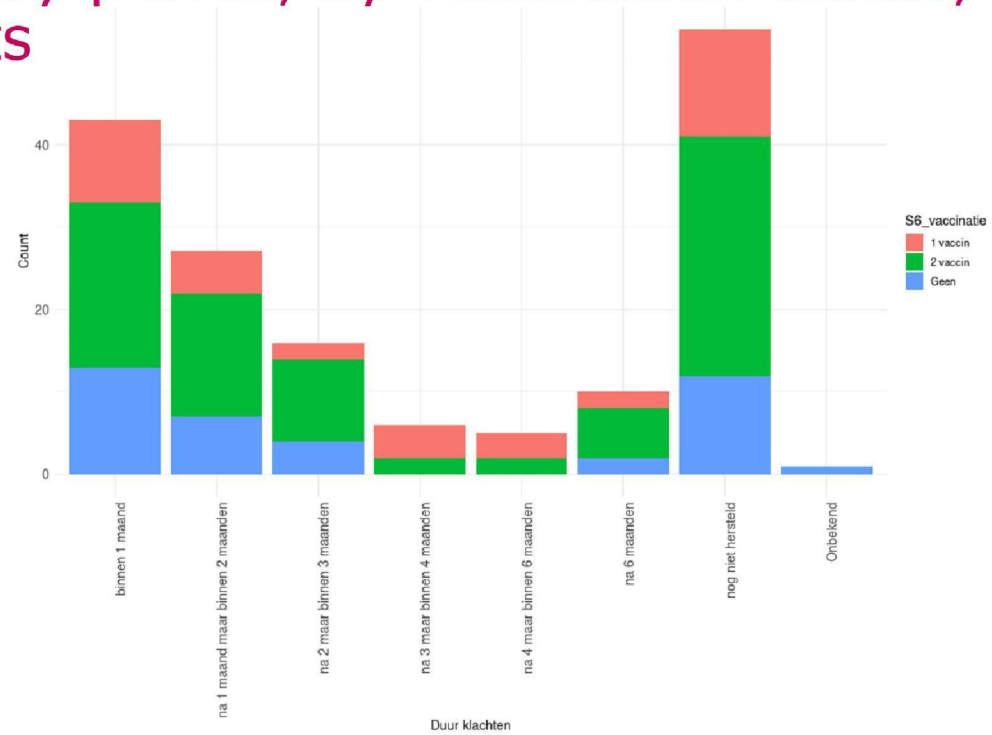
Recovery period, by age, PCC patients



Recovery period, by age, PCC patients



Recovery period, by vaccination status, PCC patients



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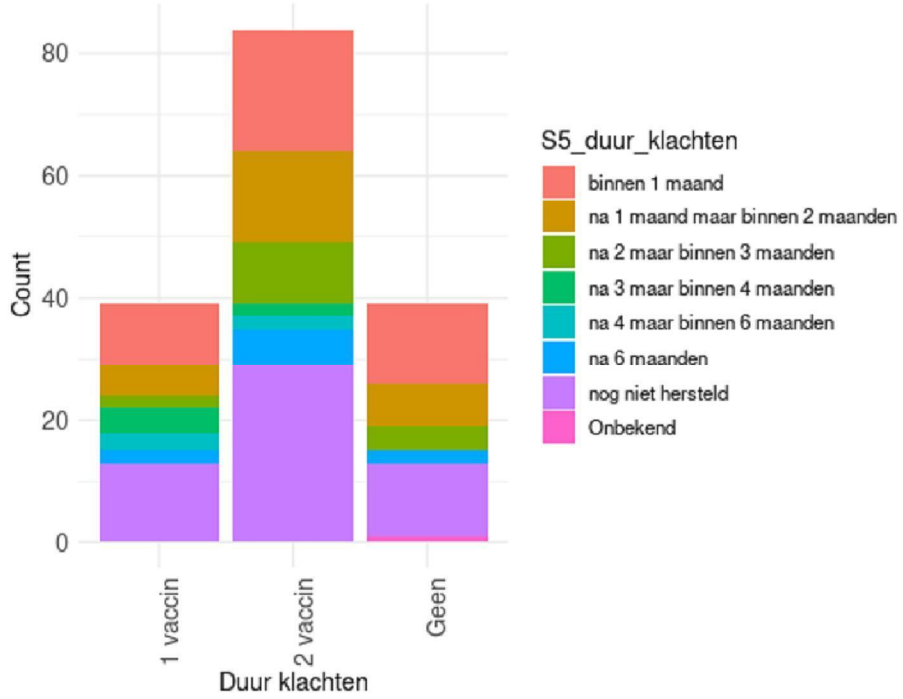

RQ 6: What healthcare needs do people with post-COVID-19 condition experience?

Healthcare utilization pre-pandemic and in the last week, by subgroup

- Difference in #doctors seen pre-corona and last week per subgroup;

Healthcare utilization by current and recovered PCC patients during PCC period

- 2) total number of visits for medical and paramedical care during the entire PCC episode, additional (non-(para)medical) care use, self-care and location of care (for current and former PCC patients only). For this latter group also the unfulfilled care needs will be assessed.

Predictors of high healthcare utilization by PCC patients

- Logistic regression model
- Outcome: High healthcare utilization (dichotomous)
- Predictors:

1. Gender
2. Age (cat)
3. Pre-existing comorbidity
4. Current BMI (continuous)
5. Fully vaccinated at time of acute COVID-19 infection (yes/no)
6. Healthcare utilization during acute phase;
7. Hospitalization for acute COVID-19 (yes/no);
8. Current EQ-5D;
9. Number of persistent symptoms;

Latere analyses (predictive modelling)

- RQ4: To what extent do persistent symptoms impact **daily functioning** and health-related quality of life (**HRQoL**);
  - Uitkomstmaten: EQ-VAS en EQ5D gewogen score en verdeling & sensitivity analysis
- RQ5: To what extent do PCC-patients on Bonaire receive **support** from their (work) environment;
- RQ8: Which factors are associated with developing PCC;
  - RQ7: To what extent is severe COVID-19 (defined as hospitalization) associated with an increased risk of developing PCC;
- RQ9: Which factors increase the severity of PCC?

Acknowledgements

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  - [redacted] (PI)
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  - [redacted]
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  - [redacted]
- **Public Health Saba**