

## **SUPPLEMENT**

### *Comparison of physical characteristics and specific COVID survey items*

The comparison between men and women showed significantly lower medical consultations in females ( $p=0.0048$ , see Table S1), whereas there were no differences regarding dyspnoea and physical capacity ( $p>0.05$ , each). The comparison between patients with higher versus lower exacerbation risk (GOLD groups CD vs AB) revealed lower medical consultations ( $p=0.0205$ ), higher dyspnoea levels and lower physical capacity in the high-risk group ( $p<0.001$ , each). Similarly, symptomatic patients (GOLD groups BD versus AC, equivalently mMRC $\geq 2$ ) reported significantly less medical consultations ( $p=0.024$ ), more dyspnoea ( $p<0.001$ ) and less physical capacity ( $p<0.001$ ). High educational level was associated with less compliance to the wearing of face-masks and the reduction of travel. For further details see Table S1.

Since arterial hypertension, coronary artery disease, diabetes and obesity have been identified as risk factors for worse COVID-19 outcome, we additionally assessed their relationship to the answers in the COVID1 survey, since we assumed that patients might be informed in the public media on appropriate behaviour. There were, however, no strong, consistent relationships (Table S1).

Moreover, the answers to the COVID1 questionnaire, particularly those on clinical state, did not depend on the rate of annual decline of spirometric lung function or diffusing capacity as determined since inclusion into COSYCONET.

### **Additional topics for discussion**

#### *Associations of psychological disorders and specific COVID survey items*

Protective measures such as social distancing and isolation, however, may also induce or enhance adverse social behaviour and psychological disorders, like depression, as known for various chronic diseases [1]. Depression is known to be linked to the clinical state and course of COPD, [2, 3]. However, a cautious approach should be taken in interpreting specific questionnaires, like the PHQ-9, and the influence of COPD symptoms on the results should be taken into account. [4]

#### *Associations on Risk factors and answers to covid survey items*

Several risk factors for a severe course of COVID-19 have been described, especially male sex, the presence of cardiovascular disease such as hypertension and coronary artery disease, as well as diabetes and obesity. [5-7] Interestingly, we did not observe significant relationships between these conditions and indicators of the patients' clinical state. There were, however, relationships to the degree of adherence to the protective measures. These were most obvious when comparing males and females, as females showed a better adherence in a number of aspects. [8] Regarding comorbidities, a lower level of behavioural compliance appears to be counterproductive in light of the risk factors that can be assumed to be known by patients.

#### *Changes in established measures (CAT, mMRC, PHQ-9)*

Minimally important differences (MID) are used to assess, whether an intra-individual change is clinically meaningful and potentially recognized by a patient. For the CAT, a MID of 2 points is established [9], while for mMRC and PHQ-9 no MIDs have been published, to our knowledge. One might assume that their maximum values of 5 and 27, respectively, could be scaled to the maximum CAT value of 40, as CAT very well correlates with PHQ-9 and mMRC in COPD. Thus, regarding mMRC and PHQ-9, one

might assume 0.25 ( $=2*5/40$ ) and 1.5 ( $\approx 2*27/40$ ) points, respectively, as relevant changes. When considering the period from COSYCONET visit 6 to COVID 2, the mean change was 1.4 in the CAT total score, i.e. less than 2 but in our view this still indicates at least a trend. In comparison, the changes in mMRC and PHQ-9 were smaller, being 0.23 and 0.53 points on average.

For the sake of clarity, we used pairwise comparisons for statistical analysis. When repeating this with a mixed model comprising all time points, essentially the same results were obtained; as expected, there were also significant differences between the results for time points 1 and 3, in accordance with the results given in table 2.

## LITERATURE

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Patients' characteristics	Differences in answers COVID1 survey
Female gender	<ul style="list-style-type: none"> <li>- Increased hand washing</li> <li>- Increased hand disinfection</li> <li>- accumulate more food stocks</li> <li>- avoid travelling</li> <li>- keep more distance in everyday life</li> <li>- Avoid contact with doctors</li> <li>- Information is more obtained less in clinics</li> <li>- Move less due to public restrictions</li> </ul>
BMI $\geq$ 30kg/m <sup>2</sup>	<ul style="list-style-type: none"> <li>- Wear less mouth-nose protection in public spaces</li> </ul>
High education (versus basic secondary education)	<ul style="list-style-type: none"> <li>- Wear less mouth-nose protection in public spaces</li> <li>- forgo less travel</li> <li>- Report that less physiotherapy treatment does not negatively affect activity levels</li> </ul>
Higher exacerbation risk (GOLD CD)	<ul style="list-style-type: none"> <li>- disinfect hands less</li> <li>- accumulate more food stocks</li> <li>- avoid travelling</li> <li>- Avoid contact with doctors</li> <li>- Renounce lung sports</li> <li>- Information is more obtained through public media</li> <li>- Information is more obtained through pneumologist</li> <li>- Scheduled checkup appointments were increasingly canceled by practices</li> <li>- health condition has deteriorated</li> <li>- report more dyspnoea</li> <li>- report more cough and sputum production</li> <li>- report more exacerbations</li> <li>- physical capacity deteriorated</li> </ul>
Higher GOLD grades 3/4 (versus 0/1/2)	<ul style="list-style-type: none"> <li>- Information is more obtained through public media</li> <li>- report a better accessibility of the general practitioner</li> <li>- health condition has deteriorated</li> <li>- report more dyspnoea</li> <li>- physical capacity deteriorated</li> </ul>
mMRC $\geq$ 2	<ul style="list-style-type: none"> <li>- accumulate more food stocks</li> <li>- Avoid contact with doctors</li> <li>- Renounce lung sports</li> <li>- Report more that personal meetings can be replaced by tele-consultation</li> <li>- health condition has deteriorated</li> <li>- report more dyspnoea</li> <li>- report more cough and sputum production</li> <li>- report more exacerbations</li> </ul>

	<ul style="list-style-type: none"> <li>- Move less due to public restrictions</li> <li>- Report that less physiotherapy treatment does negatively affect activity levels</li> <li>- Walks less due to fear of infection</li> <li>- physical capacity deteriorated</li> </ul>
Diagnosis of coronary artery disease	<ul style="list-style-type: none"> <li>- keep less distance in everyday life</li> <li>- Renounce less lung sports</li> <li>- Information is more obtained through general practitioner</li> <li>- report more exacerbations</li> </ul>
Diagnosis of arterial hypertension	<ul style="list-style-type: none"> <li>- Increased hand washing</li> </ul>
Diagnosis of Diabetes	<ul style="list-style-type: none"> <li>- Information is more obtained through general practitioner</li> </ul>

**Table S1. Associations between patients' characteristics as determined in COSYCONET and answers in the COVID1 survey.**

Only significant associations are given ( $p < 0.05$ ). For each patient characteristic all single survey items were tested by chi-squared statistics