

## Journal Pre-proof

The Collaborative Outcomes study on Health and Functioning during Infection Times in Adults (COH-FIT-Adults): Design and methods of an international online survey targeting physical and mental health effects of the COVID-19 pandemic.

Marco Solmi , Christoph U. Correll

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2 **The Collaborative Outcomes study on Health and Functioning during Infection**  
3 **Times in Adults (COH-FIT-Adults): Design and methods of an international**  
4 **online survey targeting physical and mental health effects of the COVID-19**  
5 **pandemic.**

6 Marco Solmi<sup>1,2,3, §</sup>, Christoph U. Correll<sup>4,5,6</sup>

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8 <sup>1</sup> Department of Neurosciences, University of Padua, Padua, Italy. <sup>2</sup> Padua Neurosciences Center, University of Padua, Padua, Italy. <sup>3</sup>  
9 Early Psychosis: Interventions and Clinical-detection (EPIC) Laboratory, Institute of Psychiatry, Psychology and Neuroscience,  
10 King's College London, London, UK. <sup>4</sup> Department of Psychiatry, Zucker Hillside Hospital, Northwell Health, Glen Oaks, NY, USA.  
11 <sup>5</sup> Department of Psychiatry and Molecular Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell,  
12 Hempstead, NY, USA. <sup>6</sup> Department of Child and Adolescent Psychiatry, Charité Universitätsmedizin, Berlin, Germany.  
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14 All authors named in the file “COH-FIT Consortium” are full authors of the work and must be listed in  
15 the authorline, in the order provided in the file “COH-FIT Consortium”.

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27  
28 <sup>§</sup> **Corresponding author: Marco Solmi**, Neurosciences Department, University of Padua, Italy. Tel.: +39  
29 049 8213831, E-mail: marco.solmi83@gmail.com

30 **Highlights**

- 31 • The Collaborative Outcome study on Health and Functioning during Infection Times (COH-  
32 FIT) is the broadest survey on COVID-19 impact to date, involving over 230 researchers  
33 and 120 institutions across the six continents  
34 • COH-FIT is an online anonymous survey, cross-sectional at the individual level, but  
35 longitudinal at the population level, and has a multi-wave structure  
36 • COH-FIT is available in 30 languages, being inclusive towards linguistic and ethnic  
37 minorities  
38 • COH-FIT collects responses from adults, adolescents, and children starting from 6 years old  
39 • COH-FIT collects both representative sample via polling agencies, and non-representative  
40 samples via snowball/non-probability recruiting approach  
41 • COH-FIT has been collecting over 120,000 responses from over 150 countries, fro, the six  
42 continents from April 26th, 2020 to February 20th, 2021  
43 • Take the survey at [www.coh-fit.com](http://www.coh-fit.com)

44 **ABSTRACT 248/250**

45 **Background:** High-quality comprehensive data on short-/long-term physical/mental health effects of the  
46 COVID-19 pandemic are needed.

1 **Methods:** The Collaborative Outcomes study on Health and Functioning during Infection Times (COH-FIT)  
2 is an international, multi-language (n=30) project involving >220 investigators from 49 countries, endorsed  
3 by national/international professional associations. COH-FIT is a multi-wave, on-line anonymous, cross-  
4 sectional survey [wave 1: 04/2020 until the end of the pandemic, waves 2/3 starting 6/24 months thereafter]  
5 for adults, adolescents (14-17), and children (6-13), utilizing non-probability/snowball and representative  
6 sampling. COH-FIT aims to identify non-modifiable/modifiable risk factors/treatment targets to inform  
7 prevention/intervention programs to improve social/health outcomes in the general population/vulnerable  
8 subgroups during/after COVID-19. In adults, co-primary outcomes are change from pre-COVID-19 to intra-  
9 COVID-19 in well-being (WHO-5) and a composite psychopathology P-Factor. Key secondary outcomes are  
10 a P-extended factor, global mental and physical health. Secondary outcomes include health-service  
11 utilization/functioning, treatment adherence, functioning, symptoms/behaviors/emotions, substance ab-/use,  
12 violence.

13 **Results:** Starting 04/26/2020, up to 01/27/2021 >120,000 people from 152 countries/six continents have  
14 participated. Representative samples of  $\geq 1,000$  adults have been collected in 15 countries. Overall, 48.7%  
15 had prior physical disorders, 18.0% had prior mental disorders, 17.0% were health care workers, 7.3% were  
16 aged  $\geq 65$  years, 11.5% were exposed to someone infected with COVID-19, 16.2% had been in quarantine,  
17 and 1.1% had been COVID 19-positive.

18 **Limitations:** Cross-sectional survey, preponderance of non-representative participants.

19 **Conclusions:** Results from COH-FIT will comprehensively quantify the impact of COVID-19, seeking to  
20 identify high-risk groups in need for acute and long-term intervention, and inform evidence-based health  
21 policies/strategies during this/future pandemics.

## 1. INTRODUCTION

In March 2020, the World Health Organization (WHO) declared the COVID-19 virus (known as Coronavirus) a global pandemic. Up until January 27th, 2021, 100,371,303 individuals had confirmed COVID-19 infection, and 2,160,562 died.(Dong et al., 2020; Johns Hopkins University, 2020; World Health Organization, 2020) The infection was first detected in China and subsequently in all six inhabited continents, leading to almost ubiquitous public health restrictive measures (e.g., personal/public space hygiene measures, social/physical distancing, travel restrictions, personal protective equipment, quarantine). Both the COVID-19 pandemic and applied restrictive measures can have marked detrimental effects on physical and mental health-related quality of life and functioning of the general population and in specific population groups, which could be at increased risk of poor health and well-being during infection times (i.e., health workers, children, elderly, individuals with physical or mental conditions,(Alonso et al., 2021; Anmella et al., 2020; Lima et al., 2020; Qiu et al., 2020; Salazar de Pablo et al., 2020; Wang et al., 2020) refugees/social/ethnic minority groups, people experiencing relevant financial loss/losing their job).

A pandemic is a very stressful event *per se*, considering exposure to deaths, multi-level restrictions, emotions of fear and an uncertain future. In the U.S. only, it is estimated that up to 40 million people will lose their job due to the COVID-19 pandemic, with the lower socio-economic strata of the population bearing the hardest consequences.(“Poor Americans Hit Hardest by Job Losses Amid Covid-19 Lockdowns, Fed Says - The New York Times,” n.d.) Moreover, behavioural restriction and social isolation measures have forced drastic life-style changes in every-day (co-)living conditions, which can (independently from the infection’s spreading) introduce additional stress with concurrently minimized stress management resources access/availability, and potentially trigger unhealthy life-style, coping strategies, and verbal and physical aggressive behaviours within households.(Fullana et al., 2020) Extended exposure to overall stress may contribute to alterations in biological stress-responsive systems (i.e., hypothalamic-pituitary-adrenal axis, autonomic nervous system, sympatho-adreno-medullary system, immune system) and precipitate physical and mental disorders (e.g., depression and anxiety disorders)(Chrousos, 2009) or negatively affect ongoing conditions in people already affected by mental or physical conditions. Beyond an immediate impact on health, the pandemic might also have delayed onset or long-term consequences in people not returning to their baseline after the removal of the stressful pandemic.

Taken together, apart from the direct COVID-19-infection-related health complications, secondary/indirect physical/mental health complications might represent the much larger, crucial and still unpredictable public-health-related burden of the pandemic.(Clark et al., 2020) However, only few studies have currently reported original, nationally/geographically comparable, inclusive and multi-language, representative data on health and well-being during the COVID-19 pandemic, and even less have included person-level assessments from the pre-COVID-19 period. In contrast, most studies have reported on data only from individual countries, with small and non-representative sample sizes, a focus on subgroups and/or

1 very restricted sets of outcomes.(Lorenc T, Khouja C, 2020) Most published/registered/ongoing studies on  
2 the mental health impact of the COVID-19 pandemic have used an either single-wave cross-sectional or  
3 longitudinal design assessing the general population or, even more so, specific groups in a single country (or  
4 restricted set of) (Dragioti et al – under review). The largest cross-sectional planned study to the best of our  
5 knowledge targeted sample size of 65,000 subjects (NCT04378452), while most studies had <10,000  
6 participants. Few longitudinal studies are targeting large national samples, such as one UK study planning to  
7 recruit >1,000,000 people (ISRCTN97041334), or have a multi-national approach, such as one study  
8 planning to recruit in 14 countries (NCT04367337). However, even such large studies did not consider  
9 linguistic/ethnic minorities, most studies use <5 mental-health-related assessment instruments, and few  
10 studies include non-psychological parameters, behavioural coping, or detailed demographic data.(Lorenc T,  
11 Khouja C, 2020) Acknowledging these gaps in the existing and evolving literature, and considering the  
12 unclear mechanisms underlying associations between the COVID-19 pandemic and health outcomes, unclear  
13 epidemiologic estimates, possible persistence of adverse outcomes after the pandemic in subgroups, unclear  
14 risk and protective factors, and differences across countries, large multi-language studies collecting multi-  
15 dimensional data throughout the pandemic from all six continents are urgently needed.

16 This article presents the hypotheses, methodology and current dissemination status (January 27th,  
17 2021) of the Collaborative Outcomes study on Health and Functioning during Infection Times (COH-FIT), a  
18 large-scale, inclusive and multi-language global study and unique collaboration between over >230  
19 researchers from 49 countries and six continents, focusing on the adult participant part of the survey study.  
20 Concurrently, we put the COH-FIT project in the context of previous or ongoing research on mental health  
21 outcomes during the COVID-19 pandemic. The design of the COH-FIT study may allow the better  
22 identification of non-modifiable/modifiable multisystem risk/resilience factors, and inform and facilitate both  
23 acute/long-term preventive responses and better adaptation capacity to the COVID-19 pandemic, without  
24 leaving linguistic minorities behind, potentially informing also evidence-based strategies for future  
25 pandemics/global crises.

## 26 2. STUDY DESIGN AND METHODOLOGY

27 In this section, the COH-FIT project is outlined regarding design, registration, objectives, hypotheses,  
28 development, researchers and institutions, countries involved, timeline, primary/key secondary/secondary  
29 outcomes, target populations, questionnaire development, variable selection, survey structure, survey  
30 platform, recruitment strategies, data storage and management, envisioned statistical analyses, funding,  
31 focusing on the COH-FIT-Adult (COH-FIT-A) part of the survey study. A description of the design of COH-  
32 FIT-Adolescent (COH-FIT-AD) and COH-FIT-Child (COH-FIT-C) is available elsewhere.(Solmi et al.,  
33 2021)

### 34 2.1. Clinical trial registration statement

1 The protocol of the COH-FIT study was finalized before first data collection, submitted on April 27<sup>th</sup> to  
2 ClinicalTrials.gov and officially registered there on May 12<sup>th</sup>, 2020 (Identifier: NCT04383470).

### 3 **2. 2. Objectives and hypotheses**

4 The primary objective of COH-FIT is to assess, quantify and understand the impact of the COVID-19  
5 pandemic and related protective measures on the health and well-being, as well as on social, behavioural and  
6 coping outcomes, and health-service functioning in the general population, and across specific population  
7 risk groups. Our hypotheses are that both physical and mental health and well-being of the general  
8 population is heterogeneously affected by the pandemic. Some groups that are characterized by non-  
9 modifiable risk factors are at increased risk of poor outcome, but also certain  
10 individual/environmental/institutional modifiable risk factors are identifiable, informing resource allocation  
11 for interventions/preventive strategies during present/future infection times.

### 12 **2. 3. Collaborator network**

13 The COH-FIT project, with >220 clinicians/researchers/academicians, across 49 countries and six continents,  
14 embraces to the authors' knowledge currently the largest global network (full list available at: [www.coh-  
15 fit.com/collaborators/](http://www.coh-fit.com/collaborators/)) among COVID-19 related health projects. Principal investigators of the COH-FIT  
16 project (Figure 1) are Christoph U. Correll, MD, and Dr. Marco Solmi, MD, PhD (details available at:  
17 <https://www.coh-fit.com/project-leads/>). Coordinating co-investigators are Agorastos Agorastos, MD,  
18 University of Thessaloniki, Greece, and Andrés Estradé, MSc, Universidad Católica, Uruguay. Individual  
19 reseachers from the professional network of PIs were invited to the project, with subsequent spontaneous  
20 team compositions at country level. Clear criteria for participating to global and local papers were set and  
21 agreed upon. No formal agreement was signed by any member, and the project has been developed based on  
22 mutual trust and consideration, globally coordinated by the coPIs and study coordinators, and locally at  
23 country level

### 24 **2. 4. Supporting and endorsing organizations**

25 COH-FIT is supported by many organizations/institutions, and national scientific associations including  
26 European College of Neuropsychopharmacology Network on the Prevention of Mental Disorders and Mental  
27 Health Promotion (ECNP PMD-MHP), European Psychiatric Association (EPA), World Association of  
28 Social Psychiatry (WASP), European Lifestyle Medicine Organization (ELMO), The Association for Child  
29 and Adolescent Mental Health (ACAMH), World Alliance for Crisis Helplines, among many more (full list  
30 of supporting partners available at <https://www.coh-fit.com/partners/>).

31 Partners that funded COH-FIT are listed in details in supplementary Table 5.

### 32 **2. 5. Study design and timeline**

33 The COH-FIT study is a cross-sectional survey, structured in three consecutive waves (wave 1, during the  
34 COVID-19 pandemic until the World Health organization (WHO) has declared the pandemic over; wave 2,  
35 starting six months later, lasting 12 months; wave 3, 24 months later, lasting 12 months). Although cross-

sectional at an individual level, COH-FIT continuously collects information during and after the pandemic, ultimately collecting longitudinal data at a population level, since individuals of the population are being sampled and assessed at different times and regional severities of the pandemic and related restrictions and effects. Study participation is anonymous. No country is excluded.

## **2. 6. Ethics committee approval**

The online survey launch on the COH-FIT website ([www.coh-fit.com](http://www.coh-fit.com)) occurred immediately after the first ethics committee/Institutional Review Board (IRB) approval (Aristotle University of Thessaloniki, Greece, 04/27/2020). Afterwards, prior to active local/national investigator outreach and advertisement activities regarding COH-FIT dissemination, approval or waiver (due to the anonymous, observational nature of the study) was sought from at least one national IRB.

## **2. 7. Target population and targeted minimum sample size**

The COH-FIT study targets adults ( $\geq 18$  years old) in all countries, plus adolescents (14-17) and children (6-13) in most countries. Demographic, socio-economic, occupational, and clinical variables will identify specific population subgroups (i.e., age groups, genders, mental or physical conditions, pregnant women, health workers, immigrants, etc.). The minimum targeted sample size upon study design was 50,000 participants in wave 1, and 30,000 each in wave 2 and 3. Since the survey participation is anonymous, individuals can't be matched across consecutive waves, but in waves 2 and 3, participants will be asked if they participated in a prior COH-FIT wave.

## **2. 8. Continent and country participation**

The COH-FIT survey is freely accessible online. Investigators from 49 countries who form the COH-FIT Consortium are actively promoting/disseminating/advertising the COH-FIT study via multi-channel approaches after IRB approval or waiver (see above). The following 49 countries are part of the COH-FIT Consortium via >220 local COH-FIT collaborators from over 120 institutions: i) Africa: Algeria, Egypt, Nigeria, South Africa, Tunisia, Uganda; ii) Asia: Bangladesh, China, India, Iran, Israel, Japan, Kazakhstan, Pakistan, Palestine, South Korea, Taiwan, Thailand; iii) Europe: Austria, Belarus, Belgium, Cyprus, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Romania, Russia, Serbia, Spain, Sweden, Switzerland, Turkey, United Kingdom; iv) North America: Canada, Mexico, United States of America; v) Oceania: Australia; vi) South America: Brazil, Chile, Colombia, Uruguay.

## **2. 9. Language availability and survey translations**

The survey is currently available in the following 30 languages: Arabic, Bengalese, Chinese (traditional), Chinese (simplified), Czech, Danish, Dutch (Belgium), Dutch (Netherlands), English, French, German, Greek, Hungarian, Italian, Japanese, Korean, Polish, Persian (Farsi), Portuguese (Brazil), Portuguese (Portugal), Romanian, Romansch, Russian, Serbian, Spanish, Swedish, Thai, Turkish, Urdu, Xhosa.

1 For each language, the original English version underwent two independent forward translations, followed  
2 by a harmonization of the two versions to create a target-language version, and one independent back-to-  
3 English translation by a third translator blinded to the original English version. The final version required the  
4 consensus of the three translators. Translators were healthcare professionals with specific competence in  
5 both the source and target language and questionnaire validation.

## 6 7 **2. 10. Survey platform, data management and protection**

8 COH-FIT survey data are collected, stored and managed using the Research Electronic Data Capture  
9 (REDCap) software tool hosted at the Department of Neurosciences of the University of Padua, Italy.(Harris  
10 et al., 2009) REDCap is a secure, web-based application designed to support data capture for research  
11 studies and used in >3,700 institutions worldwide and provides: 1) an intuitive interface for validated data  
12 entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures  
13 for seamless data downloads to common statistical packages; and 4) procedures for importing data from  
14 external sources. The application and data part reside on two separate virtual machines. The information is  
15 stored in two different datastore nodes to ensure resilience, disaster recovery and business continuity.  
16 Backup of all information is ensured daily. The entire system is protected by two perimetral defense levels.  
17 All operations are logged as required by GDPR law. The participation to the study is 100% anonymous and  
18 voluntary. No individually identifying information or data regarding individuals' online activity will be  
19 collected and retained. Participating countries' national data will be made promptly available upon request to  
20 the members of each country's national COH-FIT coordinating team, prioritizing the global results  
21 dissemination before dissemination of local results. The international PIs and statistical analysis core team  
22 (see below) will have unlimited access to all global data for 15 years.

## 23 24 **2. 11. Informed consent**

25 All adult participants must provide informed consent electronically on the survey's platform prior to  
26 initiating the survey.

## 27 28 **2. 12. Survey structure and format**

### 29 *Survey structure*

30 The survey is divided into three arms, namely COH-FIT-A (adults), COH-FIT-AD (adolescents), COH-FIT-  
31 C (children) (Figure 2). We here focus on COH-FIT-A.

32 In the COH-FIT-A, adults first fill out the self-rated COH-FIT-A questionnaire. Additionally, participants  
33 reporting being legal guardians of minors have the option to list their children's or adolescents' age, and  
34 physical and mental health diagnoses and rate them with the Children's Global Assessment Scale  
35 (CGAS),(Shaffer et al., 1983) and Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-



1 LES-Q).(Endicott et al., 2006) Finally, before study completion, participants have the option to answer  
2 validated questionnaires, namely Altman Self-Rating Mania Scale (ASRM),(Altman et al., 1997) Brief  
3 Obsessive Compulsive Scale (BOCS),(Bejerot et al., 2014) Brief Resilience Scale (BRS),(Smith et al., 2008)  
4 CGAS,(Shaffer et al., 1983) Generalized Anxiety Disorder 7-item scale (GAD-7),(Spitzer et al., 2006)  
5 Patient Health Questionnaire 9-item scale (PHQ-9),(Kroenke et al., 2001) PTSD Checklist for DSM-5 (PCL-  
6 5),(Blevins et al., 2015) Prodromal Questionnaire-16,(Ising et al., 2012) Suicidal Behaviors Questionnaire-  
7 Revised (SBQ-R).(Osman et al., 2001)

### 8 9 *Survey format*

10 The survey has an adaptive format. Depending on the selected age of the participant, COH-FIT-A, COH-  
11 FIT-AD, or COH-FIT-C are individually activated. In addition, particular questions are displayed based on  
12 specific answers to preceding questions, following a predefined branching logic. Participants have the  
13 option of saving their answers and returning later to the survey for questionnaire completion through a  
14 generated Return Code. This code is sent automatically to an individually inputted e-mail address of  
15 preference (neither the code nor email address are stored in the database) and is requested to rejoin and  
16 complete the saved questionnaire.

## 17 18 19 **2. 13. COH-FIT questionnaire, variables and rating**

### 20 *Targeted areas of interest*

21 The COH-FIT questionnaire targets information on demographic and socioeconomic status including  
22 migrant status, physical and mental health, pregnancy status, well-being, functioning,  
23 emotional/psychological, behavioural and environmental factors, including restrictions and COVID-19  
24 exposure-related information, health care access/utilization, vaccine-related beliefs/behavior, treatment  
25 adherence, telehealth, personal opinions about pandemic response measures and individual coping strategies,  
26 among others. A list of modifiable/non-modifiable factors and outcomes is available in Table 1, and Figure  
27 3. “Modifiable” and “non-modifiable” labels have been assigned from a stake-holder perspective, with those  
28 labeled “modifiable” that represent promptly actionable factors.

### 29 30 *Questionnaire development*

31 Survey questions were chosen according to published literature on the effects of pandemics and social  
32 isolation, and ongoing survey and cohort studies assessing the health impact of COVID-19 (see  
33 Supplementary Material for the considered body of evidence). The goal was to develop a questionnaire that  
34 was easy to score through simple rating and scoring instructions, comprehensively covering the areas of  
35 evaluation specified in Table 1/Figure 3. The first-draft questionnaire was developed by the two PIs, which

1 then underwent extensive testing, revision and improvement by the whole COH-FIT Consortium who  
2 ultimately approved the final version. Specifically, after reaching consensus on the areas to be assessed by  
3 the COH-FIT survey, the item pool was screened to determine the questions' applicability and relevance to  
4 the pandemic phases across cultures. Special attention was given to including items rating the level of  
5 COVID-19-related information in the population, access to/utilization of healthcare, current restrictive  
6 measures, specific emotional or behavioral changes. The language of the collected questions was adapted to  
7 qualify for use in the general population. Group consensus on both content and form was finally reached.  
8 The items were selected, so that the COH-FIT-A can be completed within 30-35 minutes.

9 To utilize a consistent and intuitive rating/scoring system that also will allow pooling across different  
10 times/dimensions, the final continuous, quantitative outcome items were as much as possible rescaled into a  
11 homogenous 0-100 visual analogue scale (VAS). These outcome questions are asked for the time period of  
12 "2 weeks of normal life prior to the outbreak of the COVID-19 pandemic" and for the "last two weeks prior  
13 to taking the survey". We chose the period of two weeks to allow for a reasonable time frame that would  
14 assure stability and validity of the response and also to be consistent with the The CoRonavIruS Health  
15 Impact Survey (CRISIS), conducted by investigators of the National Institute of Mental Health. ("CRISIS,"  
16 n.d.) (<https://github.com/nimh-comppsych/CRISIS>) Exceptions to this 2-week time frame are questions  
17 about suicide attempts (lifetime before the pandemic and since the pandemic). Items for each  
18 psychopathologic/behavioral domain of interest were selected by the two PIs aiming to as much as possible  
19 capture the assessed dimension (e.g., asking about sadness and lack of interest to capture depression, about  
20 being nervous/anxious/on the edge and unable to stop worrying for anxiety, about recurrent trauma-related  
21 experiences, acting/feeling like if trauma occurring again, avoidant behavior and alert status for post-  
22 traumatic symptoms) and endorsed/approved after beta-testing by the extended COH-FIT investigator team.  
23 For some outcomes, key items were extracted from the following validated questionnaires (which were  
24 optional additional questionnaires that a subset of adults can complete after completion of COH-FIT-A to  
25 test the validity of the selected COH-FIT-A items): Altman Self-Rating Mania Scale (ASRM),(Altman et al.,  
26 1997) Brief Obsessive Compulsive Scale (BOCS),(Bejerot et al., 2014) Brief Resilience Scale (BRS),(Smith  
27 et al., 2008) CGAS, Generalized Anxiety Disorder 7-item scale (GAD-7),(Spitzer et al., 2006) Patient Health  
28 Questionnaire 9-item scale (PHQ-9),(Kroenke et al., 2001) PTSD Checklist for DSM-5 (PCL-5),(Blevins et  
29 al., 2015) Prodromal Questionnaire-16,(Ising et al., 2012) Suicidal Behaviors Questionnaire-Revised (SBQ-  
30 R).(Osman et al., 2001) Answers to all questions, except for consent, the date of survey response, and age are  
31 optional.

## 32 33 **2. 14. The COH-FIT project international website**

34 The website ([www.coh-fit.com](http://www.coh-fit.com))("COH-FIT," n.d.) is the project hub, providing information on the project  
35 (study design, project leads, collaborators, supporting and/or endorsing organizations, funding, relevant

1 publications) and link to the survey in all available languages. A prominent, central link directs visitors to the  
2 survey platform, where visitors can re-select the survey language. Hourly updated study participation  
3 statistics per country are provided on an interactive world map (<https://www.coh-fit.com/project-statistics/>).

#### 4 5 **2. 15. Participant recruitment**

6 Two main recruitment strategies are applied. The first snowball approach generates a non-probability,  
7 convenience sample aiming to maximize the overall number of collected responses through several channels  
8 of targeted/untargeted, personal/institutional advertisement (e.g., social media, mass media, personal  
9 network, press releases, institutional newsletters) in all countries with IRB approval/waiver. The second  
10 approach targets nationally representative samples (with respect to sex, age, country/region, education  
11 (university: yes/no), and employment (yes/no), by paid professional polling companies collecting COH-FIT  
12 survey responses on behalf of the project members.

#### 13 14 **2. 16. Primary and secondary outcomes**

15 Co-primary outcomes are well-being, and a composite psychopathology measure (P-score).

16 Well-being is measured with the full WHO-5 questionnaire,(Topp et al., 2015) yet answer options were  
17 converted from the six-points Likert items to a VAS 0-100 scale.

18 The P-score is measured as the sum of unit-weighted domains measuring symptoms in the psychopathologic  
19 spectra, including only a priori extracted items proving to be valid after external validation with full  
20 questionnaires (correlation threshold  $r \geq 0.5$ ). A-priori domains envisioned to compose P-factor are: anxiety,  
21 depression, sleep, concentration, post-traumatic stress, obsessive-compulsive symptoms, bipolar mania,  
22 stress, and psychosis (for domains with multiple items, we will only retain the items correlating at least  $r \geq 0.2$   
23 provided the combined  $r \geq 0.5$ ).

24 Single/dual items used in the COH-FIT survey were extracted from the following validated self-report  
25 instruments: Generalized Anxiety Disorder 7-item scale(Spitzer et al., 2006) for anxiety, Patient Health  
26 Questionnaire 9-item scale (Kroenke et al., 2001) for depression, sleep and concentration, PTSD Checklist  
27 for DSM-5 (Blevins et al., 2015) for post-traumatic stress, Brief Obsessive Compulsive Scale (Bejerot et al.,  
28 2014) for obsessive-compulsive symptoms, Altman Self-Rating Mania Scale(Altman et al., 1997) for  
29 bipolar mania, WHO-5(Topp et al., 2015) for stress, and the Prodromal Questionnaire-16(Ising et al., 2012)  
30 for psychosis.

31 Key secondary outcomes are a P-Extended score (see below), global physical health, global mental health,  
32 global health (average of physical and mental health). The P-Extended score is the sum of unit weighted  
33 domains also including those domains not correlating well enough to make it to the P-Factor, plus loneliness,  
34 helplessness, and anger, for which no validated scales were utilized. For further information about the data  
35 analytic approach, see below.

1 Secondary outcomes include individual psychopathology domains (anxiety, depression, post-traumatic  
2 stress, obsessive-compulsive symptoms, bipolar mania symptoms, mood swings, delusions, hallucinations).  
3 In addition, episodes of self-injurious behavior, panic, sleep problems are assessed. We also consider  
4 suicidality (suicidal thoughts during the pandemic only, number of suicide attempts and proportion of people  
5 attempting suicide/ number of suicide attempts during pandemic), number of episodes witnessing,  
6 experiencing or perpetrating, aggressive behavior, other psychological experiences (anger, loneliness,  
7 helplessness, fear of infection, boredom, frustration, stress, cognition, sleep, anger, helplessness), substance  
8 and behavioral addictive behaviors (cigarettes, alcohol, cannabinoids, other substances, as well as gambling).  
9 Family/social/interpersonal/work/school functioning, self-care, social interactions, hobbies/free-time are  
10 inquired about. Resilience is also considered as a potential outcome influenced by the pandemic or as an  
11 outcome moderator. Regarding physical health, general physical health, body mass index (kg/m<sup>2</sup>), and pain  
12 are measured. Social altruism is captured with experienced social support and episodes of prosocial  
13 activities. Other daily behaviors include time spent on social media, internet, gaming, watching TV, reading,  
14 listening to music, and physical activity/exercising, among others. Finally, data on the impact of COVID-19  
15 on educational activities of medical doctors, and the impact of telemedicine on their clinical experience are  
16 collected.

17 Co-primary, key secondary, and secondary outcomes are measured as change between the last two weeks of  
18 regular life before COVID-19 outbreak and the immediate last two weeks before taking the COH-FIT  
19 survey.

20 To view the whole set of questions, readers can take the survey at [www.coh-fit.com](http://www.coh-fit.com).

## 22 **2.17. Statistical analyses**

23 All analyses will be conducted with either R (<https://www.R-project.org/>) (<https://www.R-project.org/>. R  
24 Foundation for Statistical Computing, Vienna, n.d.) or Stata (“Stata Statistical Software: Release 15.,” 2017)  
25 upon consensus on scripts between two analysts to ensure consistent results across analysts, softwares, and  
26 packages.

27 Descriptive statistics will be used for demographic, socio-economic, environmental, clinical, behavioral and  
28 psychological variables and emotions, across modifiable and non-modifiable factors. Baseline, change of co-  
29 primary, key secondary and secondary outcomes during the COVID-19 pandemic compared with before the  
30 pandemic will be reported (pre-post compared with t-test or chi-squared test), as well as proportion of people  
31 with worst and best outcome during the pandemic. Additionally, worst or best quintile, proportions of  
32 subjects above a threshold validated against full questionnaires, or mean value during the pandemic can be  
33 used as outcomes to answer different research questions.

### 34 *2.17.1 Data cleaning and quality check*

1 Any responses provided on the website before April 26th, 2020 (first COH-FIT approval by Ethical  
2 Committee and Institutional Review Board of Aristotle University of Thessaloniki, Greece, on April 15<sup>th</sup>,  
3 2020), mostly consisting of beta-testing, will be removed. Only respondents providing responses to the  
4 outcome of interest in each given paper will be included in the main analyses. For co-primary outcome well-  
5 being, relevant missing participant data will be imputed for multi-tem scales via multivariate chained  
6 equations (using MICE algorithm with *mice*(van Buuren and Groothuis-Oudshoorn, 2011) package in R) if  
7  $\geq 80\%$  of items are completed, otherwise participant data for that scale will be excluded from the analysis.  
8 For COH-FIT P-score domains, as the number of items in each domain is low (typically 1-2 items), we will  
9 not calculate a domain score for a participant if any items were missing. Only subjects finishing the survey in  
10 not less than 10 minutes will be included. Then, a “credibility score” will be applied to data accounting for  
11 the number of unrealistic or identical answers regarding either the time before or during the pandemic.  
12 Excluded will be surveys with repetitive reporting of unrealistic answers. Similarly, excluded will also be  
13 participants with  $>75\%$  of answers to VAS questions with the exact same value before and either during  
14 (wave 1 survey) or after (wave 2 and 3 survey) the pandemic.

#### 15 *Weighting and adjusting for confounding factors*

16 In order to provide nationally representative estimates, the following weighting procedures will be applied  
17 within countries. In countries where both representative and non-representative samples are collected, both  
18 representative and non-representative samples will be weighted according to quota used to collect the  
19 representative sample (age, gender, region, job status, education). In those countries where only non-  
20 representative samples will be collected, data will be weighted according to age and gender as reported here  
21 (<https://population.un.org/wpp/Download/Standard/Population/>), and according to national statistical bureau  
22 distribution of education (0, None/1, Primary school/2, High school/3, College/university degree/4, PhD),  
23 employment status (Y/N), and region, to the highest possible granular level. More in detail, we first weighted  
24 the individuals of each stratum by the ratio [population stratum size] / [sample stratum size]. However,  
25 several sample strata had no individuals, making the weighting impossible, or had too few individuals,  
26 requiring excessive weights. To overcome this problem, we multiplied the weights of all strata defined by  
27 each stratification factor level by the ratio of [total population strata size] / [total weighted sample strata  
28 size]. For example, we multiplied the weights of all women's strata by the ratio of [women in the population]  
29 / [women in the weighted sample]. We forced the resulting weights to be within a range (weights could be up  
30 to 10 times smaller or larger than the average weight). After several iterations, the weighted sample reached  
31 the overall demographic distribution as the population, and all weights were within the mentioned range.  
32 We will also run our key secondary analysis separately in by-continent analyses including an additional  
33 adjustment factor derived from direct comparison of representative vs non-representative samples on a by-  
34 continent basis.

1 To adjust for representativeness of each country's samples, each country will be assigned an adjustment  
2 factor proportional to the responses/country population ratio.

### 3 *Association between factors and outcomes*

4 The association between non-modifiable and modifiable risk factors and co-primary outcomes will be  
5 measured as follows: As a first step, unadjusted associations will be measured with linear regression  
6 (continuous outcomes). As a second step, together with date/country-matched COVID-19 new daily  
7 infections and daily deaths (freely available repository made publicly available from the Johns Hopkins  
8 University: <https://github.com/CSSEGISandData/COVID-19>), as well as country-specific and/or region-  
9 specific restriction measures drawn from national databases, all variables from within the COH-FIT survey  
10 that are significantly associated with co-primary outcomes with an equivalent Cohen's d of  $\geq 0.2$   
11 (representing at least a small effect size) at univariate analyses will compose a multivariate model. Forward  
12 and/or backward model selection (as appropriate) will be used to identify the best model predicting each  
13 outcome. We will retain in the final model all variables that are independently associated with the outcome  
14 of interest at  $p < 0.05$ . We will then rank-order the statistically significant variables based on Cohen's d effect  
15 size of the association with the outcome of interest and interpret the results in intervals of large, medium, and  
16 small effect size associations, following Cohen's original definition (small=0.2-0.49, medium=0.5-0.79,  
17 large $\geq 0.8$ ). (Sullivan and Feinn, 2012) In case that the variables are collinear, the most statistically or  
18 clinically significant variable will be selected. If the data structure requires it, we will use other variable  
19 selection techniques, such as lasso.

20 In case homoscedasticity is not be met, values will be transformed as appropriate.

21 Additionally, we will conduct logistic regression analyses for predictors or correlates of categorical co-  
22 primary, key secondary and secondary outcomes.

23 For additional publications the same analyses will be conducted on additional outcomes, with added  
24 approaches as appropriate.

### 25 *Additional analytic approaches*

26 Additional analytic approaches will be used. First, we will run a network analysis with a set of "nodes"  
27 selected based both on results of the primary analyses (exposure variables consistently associated with  
28 primary and secondary outcomes) and on clinical judgement. Second, we will test several path analyses,  
29 driven and suggested by the network structure and its nodes' centrality, in order to understand the mediation  
30 and moderation role of exposure variables, to develop a mechanistic insight into what leads to poor or  
31 resilient health outcomes. Third, we will also test internal psychometric properties of questionnaires used as  
32 validation parameters (several of them are being translated for the first time in new languages). Fourth, by  
33 means of a ROC analysis, using diagnostic thresholds of validated questionnaires as valid external reference,  
34 we will identify the score of primary and secondary outcomes items with the best specificity/sensitivity  
35 trade-off. Such threshold will be used to estimate the prevalence, as well as the incidence, persistence and

1 remission rates of likely syndromal anxiety, depressive, manic, obsessive-compulsive, post-traumatic stress  
2 disorder, at-risk for psychosis as well as of suicidal ideation symptoms during the pandemic. Fifth, random  
3 forest machine learning will be used to identify predictors of primary or secondary outcomes. Sixth, time-  
4 series analyses will be conducted to describe the trend of primary and secondary outcomes in relationship  
5 with the pandemic course and restrictions. Additional secondary analysis strategies will be discussed among  
6 members of COH-FIT Consortium as relevant/appropriate for the addressed research questions.

#### 7 *Validation analyses*

8 To test the validity of items used in the composite P-score, a Pearson correlation analysis will be run with the  
9 total score of validated questionnaires provided in the validation section of the COH-FIT-A survey (see  
10 above). The Pearson correlation analysis will be performed on the whole sample and by individual  
11 languages. Additionally, in an exploratory sensitivity analysis, we will repeat the Pearson correlation analyses  
12 between the one, two, or four COH-FIT items drawn from the full questionnaires with the full respective  
13 questionnaires between two participants' subgroups, one subgroup matched to the COH-FIT sample in the  
14 same countries that took part in the survey and not answering the validation questionnaires, and a second  
15 subgroup consisting of the remainder of the unmatched participants answering the validation  
16 questionnaires. We will only perform weighting procedures in case that the samples completing and not  
17 completing the validated scales are materially different on key demographic variables on a by-country level.  
18 Finally, internal validity of the P-Factor will be measured with standard psychometric procedures.

#### 19 **2. 18. Dissemination of results**

20 Results from the COH-FIT project will be disseminated via presentations at scientific meetings, press  
21 releases and interviews as well as scientific publications. This strategy includes at least two main papers  
22 per wave involving all collaborators merging data from all the included countries/territories, one in adult  
23 participants, one in children/adolescents, which will target major medical journals. Additional manuscripts  
24 on subgroups of participants, professions, participating countries/territories/regions, and specific outcomes,  
25 etc, will be published by subgroups of authors working specifically on these topics.

#### 27 **3. COH-FIT PRELIMINARY DISSEMINATION RESULTS**

28 By 27/01/2021, >120,000 subjects (adults, adolescents, children) have given consent to participate and  
29 started to answer the survey at least answering to the first question. Responses came from 152  
30 countries/territories (46 with  $\geq 50$  complete adult survey): 23 in Europe, eight in Asia, five in Africa, two in  
31 North and Central America, five in South America, three in Oceania. Representative adult (aged 18+)  
32 samples have been/are being collected in 15 countries: Australia, Austria, Brazil, Denmark France, Germany,  
33 Greece, Hungary, Italy, Poland, Russia, Spain, Switzerland, United Kingdom, USA.

#### 4. DISCUSSION

New information, learnings and adaptation are needed rapidly in order to minimize the likely relevant and potentially lasting negative impact of COVID-19 pandemic, including a worsening of already existing health problems and inequalities, and impact on fragile groups.(Adhikari et al., 2020; Banerjee et al., 2020; Brooks et al., 2020; Clark et al., 2020; Colao et al., 2020; Cowling et al., 2020; D'Agostino et al., 2020; Esposito et al., 2021; Holmes et al., 2020; Kamrath et al., 2020; Liu et al., 2020; Moreno et al., 2020; Nguyen et al., 2020; Panovska-Griffiths et al., 2020; Pereira-Sanchez et al., 2020; Pierce et al., 2020a; Ravi, 2020; Shi et al., 2020; Thomas et al., 2020; Viner et al., 2020; Webb Hooper et al., 2020). Acknowledging the current state of published or ongoing research on the impact of the COVID-19 pandemic and related restrictions (*cf.* Suppl. Material), to the best of our knowledge, so far there does not exist a study with a large-scale, multi-national, multi-language, and transdiagnostic approach that targets the complexity of a comprehensive, literature-informed list of modifiable and non-modifiable risk and protective factors influencing health, well-being, functioning, behavioral coping and social interactions as well as health-service access and functioning across the six continents, including representative samples. Investigating a small subset of the general population without at least weighting for representative quota of demographic and regional variables, likely limits a fuller understanding of the multifaceted factors and impacts that the pandemic exerts on the general population and relevant subgroups.(Holmes et al., 2020) Indeed, not every individual has been experiencing or will experience a deterioration in health during the pandemic, as several individual, demographic, socioeconomic, clinical and behavioral factors have repeatedly been shown to be closely associated with mental and physical health-related outcomes in a complex multidimensional network that can be modifiable or non-modifiable according to the management of the pandemic (Table S4).(Kamrath et al., 2020; Moreno et al., 2020; Ravi, 2020; Solmi et al., 2019; Thomas et al., 2020) In fact, subgroups might even have improved health due to reduced stress, for example, by not having to attend school or work in person, having increased family interactions and time, or by utilizing specific sets of coping strategies that other subgroups could also benefit from.(Luo et al., 2020) For instance, a large cohort study also showed that despite at the beginning of lockdown in United Kingdom anxiety and depression symptoms were high, they decreased across weeks following lockdown.(Fancourt et al., 2020)

In general, non-modifiable factors identify individuals at increased risk during the pandemic, who might be in need of specific interventions, while modifiable factors identify potential targets for prevention/intervention strategies. These actionable results from a large population speaking different languages across/within countries affected by COVID-19 across six continents are insufficiently available, limiting a desirable evidence-based and precision political and health care governance, without neglecting evidence from other-than-official language speaking minorities in each country.(Gao et al., 2020; Hanney et al., 2020; Maulik et al., 2020; Nussbaumer-Streit et al., 2020; Raboisson and Lhermie, 2020; Rhodes et al., 2020) So far, most recommendations are based on expert consensus.(Cortese et al., 2020; Moreno et al.,



1 2020)

2 COH-FIT envisions to fill the current gap largely excluding linguistic/ethnic minorities across the  
3 globe, as the largest international collaborative study translated in 30 languages, collecting to our knowledge  
4 the biggest set of transdiagnostic, multi-dimensional and multi-disciplinary data from currently 152 high-,  
5 middle-, and low-income countries across the globe from the general population starting from age 6.  
6 Respondents are allowed to chose their own preferred language, regardless of the country where they are  
7 answering from. Beyond that, COH-FIT particularly assesses specific populations at risk, such as minors and  
8 elderly, individuals with preexisting physical and mental disorders, lower-socioeconomic status or/and  
9 unemployed population, urban/rural area inhabitants, populations with limited access to health care and/or  
10 availability of protective devices, migrants and refugees, healthcare workers, working parents of home-  
11 school attending minors, gender minorities, pregnant women, those with economic threats, etc. In addition,  
12 COH-FIT targets pandemic effects on whole families and the relationship between of adults' and minors'  
13 health and functioning status, through the combined direct (COH-FIT-AD/C) and indirect (COH-FIT-A  
14 parental rating) assessment of same household family members, and specifically investigates the moderating  
15 effect of adaptive and maladaptive coping factors, including total screen time, substance use, social media  
16 usage, physical activity, social interaction, sexual activity, hobbies, etc.

17 The COH-FIT study is an investigator-driven project, without industry funding, which secures  
18 independent results usable by decision makers (national/international public health authorities, professional  
19 health associations, and other stakeholders), who can benefit from learnings that can be used within and  
20 across high-, middle-, and low-income countries in order to implement evidence-based, timely and multi-  
21 level (systemic, societal, individual) strategies for the current and, possibly, future pandemic outbreaks. The  
22 participant recruitment of the COH-FIT survey has been already proven effective with over 120,000  
23 participants from 152 countries on January 27<sup>th</sup>, 2021 since its launch in April 2020.

24 COH-FIT has limitations that need to be acknowledged. First, the study has a three-wave, cross-  
25 sectional design, allowing data collection in each wave over an extended period of time (duration of the  
26 pandemic, and up to 36 (waves 2 plus 3) post-end of the COVID-19 pandemic) during heterogeneous  
27 scenarios regarding both the pandemic and the applied protective measures. Furthermore, depending on  
28 IRB approval, the beginning of the proactive dissemination/advertising of the COH-FIT questionnaire varies  
29 across countries within the COH-FIT network. We plan to account for such heterogeneity by collecting  
30 information on restrictions in the COH-FIT questionnaire, and supplementing multivariate models with the  
31 temporally and locally fine-grained data from the Johns Hopkins website.(Dong et al., 2020) On the other  
32 hand, the variation in environmental “viral load” and related restrictions over time and regions will also  
33 allow for time-series analyses plotting primary, secondary outcomes, but also environmental “exposure”  
34 following the pandemic breakout throughout time. Second, retrospective items referring to the 2-week time  
35 period before the pandemic outbreak are vulnerable to recall bias. Third, the COH-FIT questionnaire

1 includes several non-validated items for primary and secondary outcomes. However, most of these items  
2 have been extracted from already validated tools, and will undergo external/internal validation assessment.  
3 Fourth, the majority of respondents are recruited via a snow-ball/ yielding non-representative/biased sample.  
4 However, we designed the study to also include representative samples to assess differences in the results  
5 between representative and non-representative samples and to weight non-representative responses according  
6 to representative quota (age, gender, region, job status, education). Yet, residual bias is always present in  
7 representative samples.(Pierce et al., 2020b) Fifth, the survey is long, which may lead to incomplete  
8 assessments in certain subgroups. However, we placed the co-primary outcome questions early within the  
9 questionnaire, right after key demographic and COVID-19 related questions. Moreover, we will assess if  
10 certain demographic variables are associated with non-completion of the survey, and will weight results  
11 based on representative quota.

12 Taken together, COH-FIT is a unique, inclusive multi-language study collecting large-scale, multi-  
13 dimensional data on individual, society, and services outcomes of the COVID-19 pandemic across the globe.  
14 COH-FIT measures health, behavior, well-being, quality of life, health-service and society functioning as  
15 outcomes (among others), and accounts for the likely largest set of modifiable and non-modifiable risk  
16 factors to date, including ethnicity, ongoing conditions, job, psychological factors (resilience), financial loss,  
17 pandemic burden and course, restrictions, among many others. The multi-wave, detailed, multi-level insight  
18 generated by the COH-FIT project is expected to be instrumental for multi-level guideline development and  
19 implementation of targeted interventions on key parameters identified by the COH-FIT results. It is hoped  
20 that the resulting data will be informative on an individual and global level, contributing to the much-needed  
21 development and refinement of evidence-based and precision resource allocation and governance during this  
22 and future infection times in order to improve overall outcomes.

## 23 **6. AUTHOR DISCLOSURES**

### 24 **6.1. Funding Statement**

25 All the institutions and funding agencies are listed in supplementary Table 5. COH-FIT PIs and collaborators  
26 have applied/are actively applying for several national and international grants to cover expenses related to  
27 the coordination of the study, website, nationally representative samples, advertisement of the study, and  
28 future dissemination of study findings.

### 29 **6.2. Conflict of Interest Statement**

30 All conflict of interest statements of all authors are detailed in Supplementary table 6.

### 31 **6.3. Author Contributions Statement**

32 CUC, MS, designed the study. MS, CUC, AA, AE, wrote the study protocol. MS, CUC, TT, FL, QR, AI, ED  
33 designed the statistical analysis plan. CUC, MS, AA, AE, DV conducted a preliminary review of the

1 available publications and ongoing registered studies. All authors contributed to the final version of the  
2 COH-FIT survey and are involved in disseminating the COH-FIT survey link and collecting the data and  
3 designing and preparing research reports on national data. All local researchers contributed to and approved  
4 translations of the COH-FIT survey in their respective language. CUC, MS, ED, TT, FL, AK had access to  
5 the global raw data on participation results. CUC, MS, AA and AE wrote the first draft of the paper. All  
6 authors read, contributed to and approved the final version of the manuscript.

#### 7 **6. 4. Acknowledgements**

8 All authors thank all respondents who took the survey so far, funding agencies and all professional and  
9 scientific national and international associations supporting or endorsing the COH-FIT project.

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Journal Pre-proof

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Journal Pre-proof

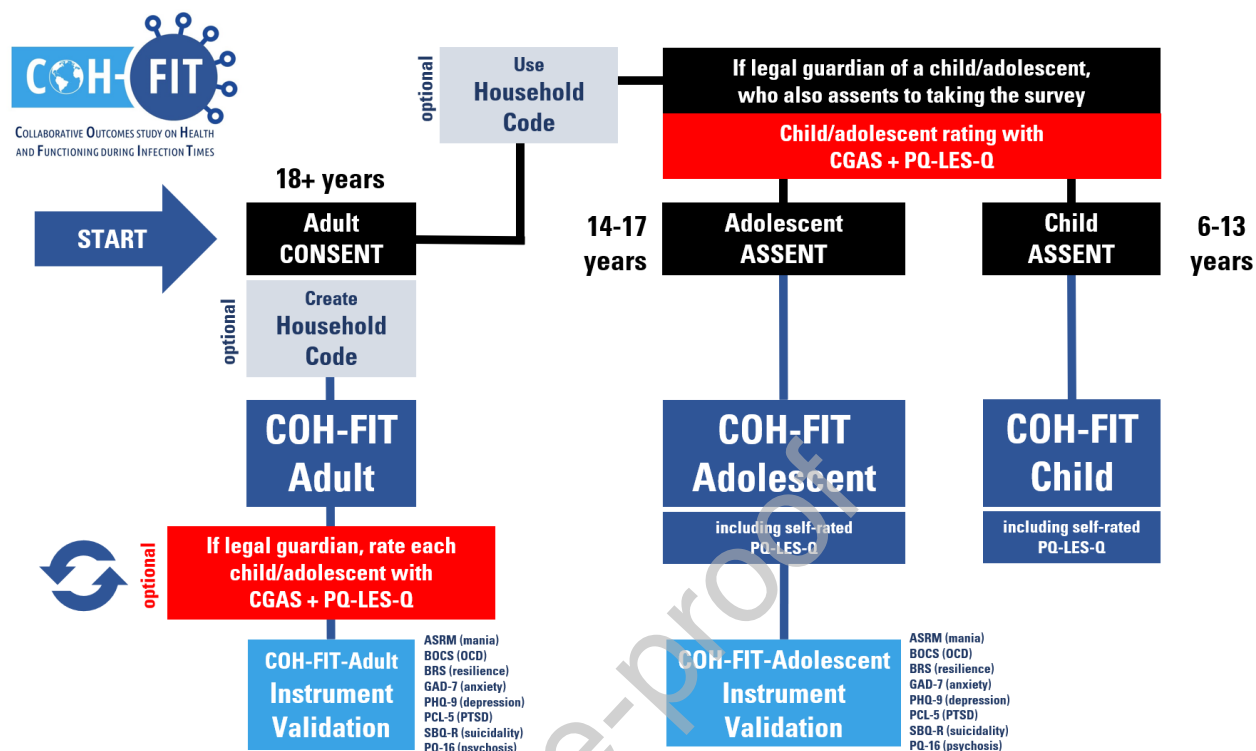
1 **Figure 1. Collaborative Outcomes study on Health and Functioning during Infection Times (COH-**  
2 **FIT) logo.**



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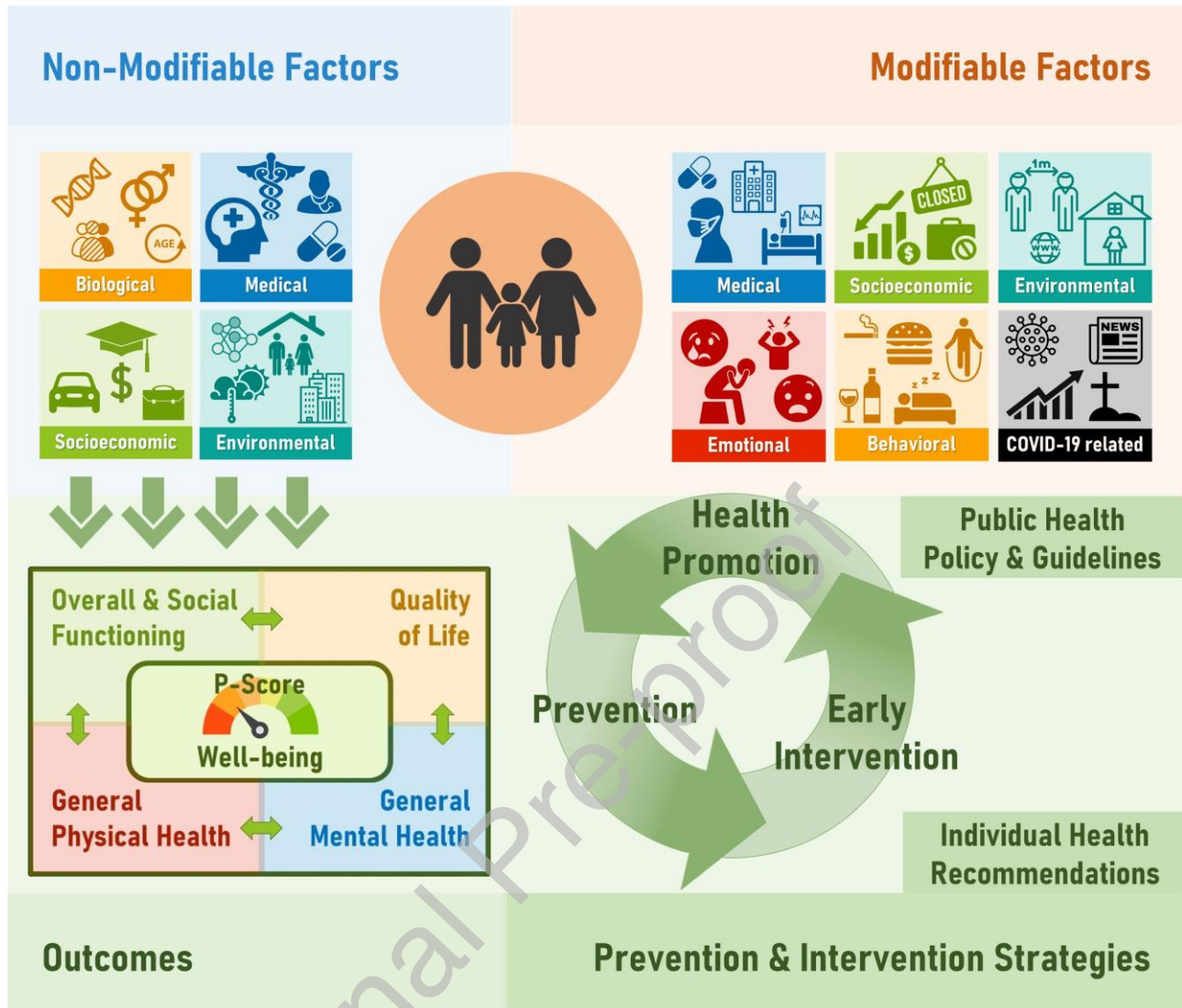
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Figure 2. COH-FIT survey participation flow chart



**Legend.** ASRM, Altman Self-Rating Mania Scale(Altman et al., 1997); BOCS, Brief Obsessive Compulsive Scale (Bejerot et al., 2014); BRS, Brief Resilience Scale(Smith et al., 2008); CGAS, Children's Global Assessment Scale(Shaffer et al., 1983); GAD-7, Generalized Anxiety Disorder 7-item scale(Spitzer et al., 2006); OCD, Obsessive Compulsive Disorder; PCL-5, PTSD Checklist for DSM-5(Blevins et al., 2015); PHQ-9, Patient Health Questionnaire 9-item scale(Kroenke et al., 2001); PQ-LES-Q, Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire(Endicott et al., 2006); PQ-16, Prodromal Questionnaire-16(Ising et al., 2012); PTSD, Post-Traumatic Stress Disorder; SBQ-R, Suicidal Behaviors Questionnaire-Revised(Osman et al., 2001).

Figure 3. COH-FIT variables universe



**Legend.** P-score is a psychopathology composite score indicating an “overall” symptom measure. It includes anxiety, depressive, obsessive-compulsive, post-traumatic, delusional and hallucinatory experiences, as well stress, sleep, concentration.

## COH-FIT synopsis

Table 1. A list of main variables and a-priori definition (exposure, outcome) of variables collected in the COH-FIT study.

Non modifiable exposure		Modifiable exposure			Outcomes [baseline values acting also as moderators, and change values as mediators]			
Demographic and socio-economic	Environmental and clinical	Behavioral/Psychological	Emotions / subjective status	Environmental and clinical	Primary outcomes	Secondary outcomes		
Age	COVID-19 infection / symptoms	Adherence to pandemic-related social restrictions	Anger	Access to medications	Well-being	Anxiety symptoms / Panic episodes	Aggressive behavior perpetration	Appetite and food intake
Education	COVID-19 related social restriction severity and duration	Vaccine-related beliefs and behavior	Boredom	Mental health care access/utilization	Composite mental health P-factor	Depressive symptoms	Aggressive behavior victim	BMI
Employment status	Family history of mental illness	Coping strategies	Fear of getting infected	Physical healthcare access/utilization	Key secondary outcomes	Euphoric mood/Mood swings	Aggressive behavior witnessing	Pain
Ethnicity/migration	Household (rooms, outside space, co-living people, social support)	Exercise	Frustration	Access to protective devices		Obsessive-compulsive symptoms	Concentration	Telemedicine experience
Gender	Mental condition	Prosocial behavior	Helplessness	COVID-19 information	P-Extended score	Post-traumatic symptoms	Self-injurious behavior	Impact on education
Job type	Medical condition	Screen time (social media, TV, gaming, reading, listening to music)	Loneliness	Economic loss	General mental health	Psychotic symptoms (Hallucinatory experiences/delusional experiences)	Sleep problems	
Marital status	Past traumatic events	Sexual activity	Resilience	Healthcare system (by country)	General physical health	Suicidal ideation / attempt	Addictive behaviors/substances	
Socioeconomic status	Urbanicity		Stress	Number of medications	Functioning / Quality of life			

Legend. Modifiable exposure will also be considered as outcomes, depending on hypotheses to be tested.

Authors statement

*COH-FIT synopsis***Conflict of Interest Statement**

All conflict of interest statements of all authors are detailed in Supplementary table 6.

**Author Contributions Statement**

CUC, MS, designed the study. MS, CUC, AA, AE, wrote the study protocol. MS, CUC, TT, FL, QR, AI, ED designed the statistical analysis plan. CUC, MS, AA, AE, DV conducted a preliminary review of the available publications and ongoing registered studies. All authors contributed to the final version of the COH-FIT survey and are involved in disseminating the COH-FIT survey link and collecting the data and designing and preparing research reports on national data. All local researchers contributed to and approved translations of the COH-FIT survey in their respective language. CUC, MS, ED, TT, FL, AK had access to the global raw data on participation results. CUC, MS, AA and AE wrote the first draft of the paper. All authors read, contributed to and approved the final version of the manuscript.

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**Collaborative Outcomes study on Health and Functioning during Infection Times (COH-FIT)**

**Authors to be named in the submitted manuscript, in the following order**

**\*Corresponding author**

Country	Name, Surname	Affiliation	Contact
Italy	Marco, Solmi*	University of Padua, Neurosciences Department	marco.solmi@unipd.it

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Uruguay	Andrés Estradé	Universidad Católica, Department of Clinical and Health Psychology	andres.estrade_vaz@kcl.ac.uk
United Kingdom	Trevor Thompson	School of Human Sciences, University of Greenwich, London, UK	T.Thompson@greenwich.ac.uk
Greece	Agorastos Agorastos	Aristotle University of Thessaloniki, II. Dept. of Psychiatry, Division of Neurosciences, Medical School, Faculty of Health Sciences	a.agorastos@hotmail.com
Spain	Joaquim Radua	Imaging of mood- and anxiety-related disorders (IMARD), Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS)	radua@clinic.cat; quimradua@gmail.com;
United Kingdom	Samuele Cortese	University of Southampton, Centre for Innovation in Mental Health	samuele.cortese@soton.ac.uk
Greece/ Sweden	Elena Dragioti	Linköping University, Pain and rehabilitation centre and department of Health, Medicine and Caring Sciences; Hellenic Open University Greece	elena.dragioti@liu.se
Austria	Friedrich Leisch	University of Natural Resources and Life Sciences, Wien	Friedrich.Leisch@boku.ac.at
Belgium /Uganda	Davy Vancampfort	KU Leuven, Department of Rehabilitation Sciences	davy.vancampfort@kuleuven.be
Denmark	Lau Thygesen	University of Southern Denmark	lct@sdu.dk
Austria	Harald Aschauer	BioPsyC - Biopsychosocial Corporation, Non-profit association for Research Funding Ltd./ Vienna, Austria	harald.aschauer@biopsyc.at
Austria	Monika Schloegelhofer	BioPsyC - Biopsychosocial Corporation, Non-profit Association for Research Funding Ltd./ Vienna, Austria	monika.schloegelhofer@biopsyc.at
Austria	Elena Akimova	BioPsyC - Biopsychosocial Corporation, Non-profit Association for Research Funding Ltd./ Vienna, Austria	elena.akimova@biopsyc.at
Switzerland	Andres Schneeberger	Psychiatric Services Grisons, Department of Adult Psychiatry	andres.schneeberger@pdgr.ch
Switzerland	Christian G. Huber	Universitäre Psychiatrische Kliniken Basel (UPK), University of Basel	christian.huber@unibas.ch
Switzerland	Hasler, Gregor	University of Fribourg, Fribourg Network of Mental Health (RFSM)	gregor.hasler@unifr.ch
Switzerland	Philippe Conus	University of Lausanne, Department of psychiatry	philippe.conus@chuv.ch
Switzerland	Roland von Känel	University Hospital Zurich, Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine	roland.vonkaenel@usz.ch
Spain	Gonzalo Arrondo	Mind-Brain Group, Institute for Culture and Society (ICS), University of Navarra, Pamplona, Spain Centre for Innovation in Mental Health, School of Psychology, University of Southampton, UK	garrondo@unav.es



## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Italy/UK	Paolo Fusar-Poli	Department of Psychosis Studies, King's College London, London, UK and Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy	paolo.fusar-poli@unipv.it
France	Philip Gorwood	CMME, GHU Paris Psychiatrie et Neurosciences (Université de Paris) & INSERM U1266 (Institute de Psychiatries et Neurosciences de Paris), F-75014 Paris, France.	p.gorwood@ghu-paris.fr
France	Pierre-Michel Llorca	CHU Clermont-Ferrand, Service de psychiatrie B, Université Clermont Auvergne, Clermont-Ferrand, France	pmlorca@chu-clermontferrand.fr
France	Krebs Marie-Odile	PEPIT, GHU Paris Psychiatrie et Neurosciences, Université de Paris & INSERM U1266 (IPNP) Institut de Psychiatrie (CNRS 3557)-75014 Paris, France.	MO.KREBS@ghu-paris.fr
Japan	Taishiro Kishimoto	Keio University School of Medicine, Department of Neuropsychiatry	tkishimoto@keio.jp
Bangladesh	Golam Rabbani	The National Foundation of Mental Health of Bangladesh	rabbanigolam33@gmail.com
Poland	Karolina Skonieczna-Żydecka	Pomeranian Medical University in Szczecin, Department Biochemical Sciences	karzyd@pum.edu.pl
Italy	Paolo Brambilla	Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy Department of Neurosciences and Mental Health, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy	paolo.brambilla1@unimi.it; chiara.moltrasio1@policlinico.mi.it;
Italy	Angela Favaro	Neurosciences Department, University of Padua, Padua, Italy	angela.favaro@unipd.it
Japan	Akihiro Takamiya	Keio University School of Medicine, Department of Neuropsychiatry	akihiro.takamiya@gmail.com
Italy	Leonardo Zoccante	Child and Adolescent Neuropsychiatry Unit, Maternal-Child Integrated Care Department, Integrated University Hospital of Verona	leonardo.zoccante@aovr.veneto.it
Italy	Marco Colizzi	Section of Psychiatry, Department of Neurosciences, Biomedicine and Movement Sciences, University of Verona	marco.colizzi@univr.it
France	Julie Bourgin	Service de Psychiatrie de l'enfant et de l'adolescent, GHNE, 91440 BURES SUR YVETTE	j.bourgin@gh-nord-essonne.fr
Poland	Karol Kamiński	Medical University of Białystok Department of Population Medicine and Lifestyle Diseases Prevention	fizklin@gmail.com
Iran	Maryam Moghadasin	Department of clinical psychology, Faculty of Psychology and Education, Kharazmi University, Tehran, Iran.	mmoghadasin@yahoo.com
South Africa	Soraya Seedat	Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch	sseedat@sun.ac.za

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
		University, Department of Psychiatry	
Ireland	Evan Matthews	Waterford Institute of Technology, School of Health Sciences	ematthews@wit.ie
Cyprus	Emilia Vassilopoulou	University of Nicosia Department of Life and Health Sciences	vassilopoulouemilia@gmail.com
Brazil	Ary Gadelha	Department of Psychiatry and Medical Psychology, Universidade Federal de São Paulo, São Paulo, Brazil	aryararipe@gmail.com
Taiwan	Kuan-Pin Su	An-Nan Hospital, China Medical University, Tainan, Taiwan, Department of Psychiatry	cobolsu@gmail.com
South Korea	Jun Soo Kwon	Department of Psychiatry, Seoul National University College of Medicine, Seoul, Republic of Korea	kwonjs@snu.ac.kr
South Korea	Minah Kim	Department of Neuropsychiatry, Seoul National University Hospital, Seoul, Republic of Korea	verte82@snu.ac.kr
South Korea	Tae Young Lee	Department of Psychiatry, Pusan National University Yangsan Hospital, Yangsan, Republic of Korea	leetaey@gmail.com
Russia	Oleg Papsuev	Moscow Research Institute of Psychiatry	oleg.papsuev@gmail.com
Czech Republic	Denisa Manková	National Institute of Mental Health	denisa.mankova@nudz.cz
Italy	Andrea Boscutti	Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy	a.boscutti@gmail.com
Italy	Cristiano Gerunda	University of Padua, Neurosciences Department	cristiano.gerunda@unipd.it
Italy	Elena Righi	Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Modena, Italy	elena.righi@unimore.it
Italy	Francesco Monaco	Department of Mental Health, ASL Salerno, Salerno, Italy	fmonaco1980@gmail.com
Italy	Giovanni Croatto	University of Padova	giovannicroatto8@gmail.com
Italy	Guido Cereda	Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy	guido.cereda@unimi.it
Italy	Jacopo Demurtas	University of Modena and Reggio Emilia, Clinical and Experimental Medicine PhD Program, University of Modena and Reggio Emilia, Modena, Italy	eritrox7@gmail.com
Italy	Natascia Brondino	University of Pavia, Department of Brain and Behavioural Sciences	natascia.brondino@unipv.it
Italy	Nicola Veronese	Italian National Research Council	nicola.veronese@unipa.it
Italy	Paolo Enrico	Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy	paolo.enrico@unimi.it
Italy	Pierluigi Politi	University of Pavia, Department of Brain and Behavioural Sciences	pierluigi.politi@unipv.it

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Italy	Valentina Ciappolino	Department of Pathophysiology and Transplantation, Psychiatric Clinic, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy	valentina.ciappolino@policlinico.mi.it
Germany	Andrea Pfennig	Department of Psychiatry and Psychotherapy, University Hospital Carl Gustav Carus, Technische Universität Dresden	Andrea.Pfennig@uniklinikum-dresden.de
Germany	Andreas Bechdorf	University of Cologne	andreas.bechdorf@uk-koeln.de
Germany	Andreas Meyer-Lindenberg	Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University	Andreas.Meyer-Lindenberg@zi-mannheim.de
Germany	Christina Andreou	University of Lübeck	christina.andreou@uksh.de
Germany	Jan Rupp	University of Lübeck	jan.rupp@uksh.de
Germany	Kai G. Kahl	Hannover Medical School, Dep. of Psychiatry, Social Psychiatry and Psychotherapy	kahl.kai@mh-hannover.de
Germany	Katharina Domschke	Department of Psychiatry and Psychotherapy, Medical Center – University of Freiburg, Faculty of Medicine, University of Freiburg, Freiburg, Germany	katharina.domschke@uniklinik-freiburg.de
Germany	Michael Bauer	Department of Psychiatry and Psychotherapy, University Hospital Carl Gustav Carus, Technische Universität Dresden	Michael.Bauer@uniklinikum-dresden.de
Germany	Nikolaos Koutsouleris	Ludwig-Maximilians-University of Munich	Nikolaos.Koutsouleris@med.uni-muenchen.de
Germany	Sibylle Winter	Charite Universitätsmedizin Berlin, Child and Adolescent Psychiatry	sibylle.winter@charite.de
Germany	Stefan Borgwardt	University of Lübeck	s.borgwardt@unibas.ch; stefan.borgwardt@uksh.de
Hungary	Istvan Bitter	Department of Psychiatry and Psychotherapy, Semmelweis University, Budapest	bitter.istvan@med.semmelweis-univ.hu
Hungary	Judit Balazs	Institute of Psychology, Eotvos Lorand University, Budapest, Hungary Björknes University College, Oslo, Norway	balazs.judit@ppk.elte.hu
Hungary	Pal Czobor	Department of Psychiatry and Psychotherapy, Semmelweis University, Budapest	czobor.pal@med.semmelweis-univ.hu
Hungary	Zsolt Unoka	Department of Psychiatry and Psychotherapy, Semmelweis University, Budapest	unoka.zsolt@med.semmelweis-univ.hu
Greece	Dimitris Mavridis	Department of Primary Education, University of Ioannina	dmavridi@uoi.gr
Greece	Konstantinos Tsamakidis	Institute of Psychiatry, Psychology and Neuroscience, King's College, London	ktsamakidis@gmail.com
Greece	Vasilios P. Bozikas	Aristotle University of Thessaloniki, II. Dept. of Psychiatry, Division of Neurosciences, Medical School, Faculty of Health Sciences	mpozikas@auth.gr

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Thailand	Chavit Tunvirachaisakul	Chulalongkorn University, Department of Psychiatry	chavit.T@chula.ac.th
Thailand	Michael Maes	Chulalongkorn University, Department of Psychiatry	dr.michaelmaes@hotmail.com;
Thailand	Teerayuth Rungnirudorn	Chulalongkorn University, Department of Psychiatry	drteerayuth@gmail.com
Thailand	Thitiporn Supasitthumrong	Chulalongkorn University, Department of Psychiatry	thitiporn.s@chula.ac.th
Bangladesh	Ariful Haque	The National Foundation of Mental Health of Bangladesh	arifulhaque.ukzn@gmail.com
Brazil	Andre Brunoni	Departments of Internal Medicine and Psychiatry, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil	brunowsky@gmail.com
Brazil	Carlos Gustavo Costardi	Department of Psychiatry and Medical Psychology, Universidade Federal de São Paulo, São Paulo, Brazil	gustavocostardi@hotmail.com
Brazil	Felipe Barreto Schuch	Department of Sports Methods and Techniques, Universidade Federal de Santa Maria, Santa Maria, RS, Brazil	felipe.schuch@ufsm.br
Brazil	Guilherme Polanczyk	Departments of Internal Medicine and Psychiatry, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil	Guilherme Polanczyk <polanczyk.guilherme@gmail.com>
Brazil	Helio Elkis	Departments of Internal Medicine and Psychiatry, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil	helio.elkis@gmail.com
Brazil	Jair J. Mari	Department of Psychiatry and Medical Psychology, Universidade Federal de São Paulo, São Paulo, Brazil	jamari17@gmail.com
Brazil	Jhoanne Merlyn Luiz	Translational Psychiatry Laboratory, Graduate Program in Health Sciences, Universidade do Extremo Sul Catarinense, Criciúma, SC, Brazil	jhoanne_luiz@hotmail.com
Brazil	Lais Fonseca	Department of Psychiatry and Medical Psychology, Universidade Federal de São Paulo, São Paulo, Brazil	laismfonseca@gmail.com
Brazil	Luana V. Aparicio	Departments of Internal Medicine and Psychiatry, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil	luanavma@hotmail.com
Brazil	Samira S. Valvassori	Translational Psychiatry Laboratory, Graduate Program in Health Sciences, Universidade do Extremo Sul Catarinense, Criciúma, SC, Brazil	samiravalvassori@unesc.net
Brazil	Zila M. Sanchez	Department of Preventive Medicine, Universidade Federal de São Paulo, São Paulo, Brazil	zila.sanchez@gmail.com
Denmark	Merete Nordentoft	University of Copenhagen	mn@dadlnet.dk

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Denmark	Per Vendsborg	Psykiatrifonden, Copenhagen, Denmark	pv@psykiatrifonden.dk
Denmark	Sofie Have Hoffmann	University of Southern Denmark	sohh@sdu.dk
Switzerland	Erich Seifritz	University of Zurich	erich.seifritz@bli.uzh.ch
Switzerland	Eva Kowalinski	Universitäre Psychiatrische Kliniken Basel (UPK), University of Basel	eva.kowalinski@upk.ch
Switzerland	Isabelle Gothuey	University of Fribourg, Fribourg Network of Mental Health (RFSM)	Isabelle.gothuey@rfsm.ch
Switzerland	Jennifer Küster	Universitäre Psychiatrische Kliniken Basel (UPK), University of Basel	jennifer.kuester@upk.ch
Switzerland	Jihed Sehli	University of Fribourg, Fribourg Network of Mental Health (RFSM)	jihed.sehli@gmail.com
Switzerland	Norman Sartorius	Association for the Improvement of Mental Health Programmes (AMH)	sartorius@normansartorius.com
Switzerland	Sabina Heuss	FHNW University of Applied Sciences and Arts Northwestern Switzerland	sabina.heuss@fhnw.ch
Switzerland	Tiziana Ziltener	Universitäre Psychiatrische Kliniken Basel (UPK), University of Basel	tiziana.ziltener@upk.ch
Switzerland	Undine E. Lang	Universitäre Psychiatrische Kliniken Basel (UPK), University of Basel	undine.lang@upk.ch
United States	Daniel Guinart	The Zucker Hillside Hospital, Northwell Health, NY Zucker School of Medicine at Hofstra/Northwell, NY	DGuinart@northwell.edu
United States	Jane Hamilton	University of Texas Health Science Center Houston, McGovern Medical School, Louis A. Faillace, MD, Department of Psychiatry and Behavioral Sciences	Jane.E.Hamilton@uth.tmc.edu
United States	John Kane	Feinstein Institutes for Medical Research	JKane2@northwell.edu
United States	Jose Rubio	Feinstein Institutes for Medical Research	JRubio13@northwell.edu
United States	Michael Sand	Boehringer-Ingelheim	michael.sand@boehringer-ingelheim.com
Spain	Ai Koyanagi	Research and Development Unit, Parc Sanitari Sant Joan de Deu, CIBERSAM, ICREA, Barcelona, Spain	a.koyanagi@pssjd.org
Spain	Aleix Solanes	Imaging of mood- and anxiety-related disorders (IMARD), Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS)	al.solanes@gmail.com
Spain	Alvaro Andreu-Bernabeu	Department of Child and Adolescent Psychiatry, Institute of Psychiatry and Mental Health (IPS MARAÑÓN), Hospital General Universitario Gregorio Marañón, IISGM, CIBERSAM, Madrid, Spain	a.andreu.bernabeu@gmail.com; alvaro.andreu@salud.madrid.org
Spain	Antonia San José Cáceres	Department of Child and Adolescent Psychiatry, Institute of Psychiatry and Mental Health (IPS MARAÑÓN), Hospital General Universitario Gregorio Marañón, IISGM, CIBERSAM, Madrid, Spain	antonia.sanjose@iisgm.com

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Spain	Celso Arango	Department of Child and Adolescent Psychiatry, Institute of Psychiatry and Mental Health (IPS MARAÑON), Hospital General Universitario Gregorio Marañon, IISGM, CIBERSAM, School of Medicine, Universidad Complutense, Madrid, Spain	carango@hggm.es
Spain	Covadonga M Diaz-Caneja	Department of Child and Adolescent Psychiatry, Institute of Psychiatry and Mental Health (IPS MARAÑON), Hospital General Universitario Gregorio Marañon, IISGM, CIBERSAM, Madrid, Spain	covadonga.martinez@iisgm.com
Spain	Diego Hidalgo-Mazzei	Hospital Clínic de Barcelona	dahidalg@clinic.cat
Spain	Eduard Vieta	Bipolar and depressive disorders, Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS)	evieta@clinic.cat
Spain	Javier Gonzalez-Peñas	Department of Child and Adolescent Psychiatry, Institute of Psychiatry and Mental Health (IPS MARAÑON), Hospital General Universitario Gregorio Marañon, IISGM, CIBERSAM, Madrid, Spain	javipenhas@gmail.com
Spain	Lydia Fortea	Imaging of mood- and anxiety-related disorders (IMARD), Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS)	lydiafor94@gmail.com
Spain	Mara Parellada	Department of Child and Adolescent Psychiatry, Institute of Psychiatry and Mental Health (IPS MARAÑON), Hospital General Universitario Gregorio Marañon, IISGM, CIBERSAM, School of Medicine, Universidad Complutense, Madrid, Spain	parelladahggm@gmail.com; parellada@hggm.es;
Spain	Miquel A. Fullana	Imaging of mood- and anxiety-related disorders (IMARD), Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS)	mafullana@clinic.cat
Spain	Norma Verdolini	Bipolar and Depressive Disorders Unit, Hospital Clinic, University of Barcelona, Institute of Neuroscience, IDIBAPS, CIBERSAM, Spain	norma.verdolini@gmail.com
Czech Republic	Eva Fárková	National Institute of Mental Health	eva.farkova@nudz.cz
Czech Republic	Karolína Janků	National Institute of Mental Health	karolina.janku@nudz.cz
Czech Republic	Kateřina Červená	National Institute of Mental Health	katerina.cervena@nudz.cz
Czech Republic	Michal Šmotek	National Institute of Mental Health	michal.smotek@nudz.cz
France	Elisabetta Scanferla	CMME, GHU Paris psychiatrie et neurosciences, Université de Paris	e.scanferla@ghu-paris.fr
France	Ingrid De Chazeron	Centre Hospitalier Universitaire de Clermont-Ferrand, Université Clermont Auvergne, Clermont-Ferrand, France	idechazeron@chu-clermontferrand.fr

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
France	Mark Millan	Institute de Recherché de Servier (IDRS)	mark.millan@servier.com
France	Mihaela Honciuc	CHU Clermont-Ferrand, Service de psychiatrie B, Clermont-Ferrand, France	rmhonciuc@chu-clermontferrand.fr
France	Valentine Morin	PEPIT, GHU Paris psychiatrie et neurosciences, Université de Paris	v.morin@ghu-paris.fr
Austria	Alexa Kuenburg	Klinik Landstraße Vienna, Austria	alexakuenburg@hotmail.com
Poland	Anna Moniuszko-Malinowska	Medical University of Bialystok Department of Infectious Diseases and Neuroinfections	annamoniuszko@op.pl
Poland	Igor Łoniewski	1/Pomeranian Medical University in Szczecin, Department of Human Nutrition and Metabolomics; 2/Sanprobi Sp. z o.o. Sp. k	sanprobi@sanprobi.pl
Poland	Jerzy Samochowiec	Pomeranian Medical University in Szczecin, Department of Psychiatry	samoj@pum.edu.pl
Poland	Lukasz Kiszkiel	University of Bialystok Institute of Sociology Department of Cognitive Sociology	lukaszkiarki@gmail.com
Poland	Maria Marlicz	Pomeranian Medical University in Szczecin, Department of Human Nutrition and Metabolomics	mariamarlicz@gmail.com
Poland	Pawel Sowa	Medical University of Bialystok Department of Population Medicine and Lifestyle Diseases Prevention	mailtosowa@gmail.com
Poland	Wojciech Marlicz	1/ Pomeranian Medical University in Szczecin, Department of Gastroenterology 2/ The Centre for Digestive Diseases Endoklinika, Szczecin, Poland	marlicz@hotmail.com
South Africa	Georgina Spies	Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Department of Psychiatry	ggiocos@sun.ac.za
United Kingdom	Amedeo Minichino	Department of Psychiatry, University of Oxford, Oxford, UK	amedeomin@gmail.com
United Kingdom	Belinda Lennox	Oxford University	belinda.lennox@psych.ox.ac.uk
United Kingdom	Brendon Stubbs	King's College London	brendon.stubbs@kcl.ac.uk
United Kingdom	Joseph Firth	University of Manchester, Division of Psychology and Mental Health	joseph.firth@manchester.ac.uk
United Kingdom	Sarah Sullivan	University of Bristol	Sarah.Sullivan@bristol.ac.uk
Turkey	Aslı Enez Darcin	Istanbul Basaksehir Cam ve Sakura City Hospital., Department of Psychiatry	aslienez@gmail.com

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Turkey	Hatice Aksu	Adnan Menderes University Department of Child and Adolescent Psychiatry, Aydın	aksubhatice@yahoo.com
Turkey	Nesrin Dilbaz	Uskudar University, Department of Psychiatry and Psychology	nesrin.dilbaz@gmail.com
Turkey	Onur Noyan	Uskudar University, Department of Psychiatry and Psychology	conurnoyan@gmail.com
Japan	Momoko Kitazawa	Keio University School of Medicine, Department of Neuropsychiatry	m-kitazawa@keio.jp
Japan	Shunya Kurokawa	Keio University School of Medicine, Department of Neuropsychiatry	shunya5@keio.jp; shunyakurokawa@gmail.com;
Japan	Yuki Tazawa	Keio University School of Medicine, Department of Neuropsychiatry	tazawa@a5.keio.jp
Uruguay	Alejandro Anselmi	Universidad Católica, Department of Clinical and Health Psychology	alejandro.anselmi@ucu.edu.uy
Uruguay	Cecilia Cracco	Universidad Católica, Department of Clinical and Health Psychology	ccracco@ucu.edu.uy
Australia	Diego De Leo	Griffith University	D.DeLeo@griffith.edu.au
Australia	Jackie Curtis	Mindgardens Neuroscience Network, Sydney, Australia	j.curtis@unsw.edu.au
Australia	Michael Berk	Deakin University School of Medicine	michael.berk@deakin.edu.au
Australia	Philip Ward	School of Psychiatry, UNSW Sydney, Australia	p.ward@unsw.edu.au
Australia	Scott Teasdale	School of Psychiatry, UNSW Sydney, Australia	scott.teasdale@unswalumni.com
Australia	Simon Rosenbaum	School of Psychiatry, UNSW Sydney, Australia	s.rosenbaum@unsw.edu.au
Australia	Wolfgang Marx	Deakin University School of Medicine	wolf.marx@deakin.edu.au
Romania	Adrian Vasile Horodnic	University of Medicine and Pharmacy Gr. T. Popa Iasi	adrian-vasile-horodnic@umfiasi.ro
Romania	Liviu Oprea	University of Medicine and Pharmacy Gr. T. Popa, Iasi, Faculty of Medicine	liviu.oprea@umfiasi.ro; liviu.oprea@gmail.com;
Romania	Ovidiu Alexinschi	INSTITUTE OF PSYCHIATRY SOCOLA, DEPARTMENT OF PSYCHIATRY IIIA	alexinschi@yahoo.com
Romania	Petru Ifteni	Transilvania University of Brasov, Faculty of Medicine	petru_ifteni@yahoo.com
Romania	Serban Turliuc	University of Medicine and Pharmacy Gr. T. Popa Iasi, Department of Psychiatry	serban_turliuc@yahoo.com
Romania	Tudor Ciuhodaru	Emergency Hospital "Nicolae Obu"	tudorciuhodaru@yahoo.co.uk
Netherlands	Dorien H. Nieman	Academisch Medisch Centrum Universiteit van Amsterdam	d.h.nieman@amc.uva.nl
Netherlands	Iris Sommer	Cognitive Neurosciences, Department of Biomedical Sciences of Cells & Systems, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands; Department of Psychiatry, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands.	i.e.c.sommer@umcg.nl
Netherlands	Jim van Os	Utrecht University Medical Centre, Department of Psychiatry	j.j.vanos-2@umcutrecht.nl;



## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Netherlands	Therese van Amelsvoort	The Netherlands Maastricht University, Department of Psychiatry and Neuropsychology	t.vanamelsvoort@maastrichtuniversity.nl
Taiwan	Ching-Fang Sun	Mind-Body Interface Center, China Medical University Hospital, Taichung, Taiwan	chingfangsun@gmail.com
Taiwan	Ta-wei Guu	China Medical University Beigang Hospital, Division of Psychiatry, Department of Internal Medicine	da20vid@gmail.com
China	Can Jiao	School of Psychology Shenzhen University,	jiaocan@szu.edu.cn
China	Jieting Zhang	School of Psychology, Shenzhen University,	jenny121@126.com
China	Liye Zou	School of Psychology, Shenzhen University	liyezou123@gmail.com
China	Xin Yu	Department of Public Mental Health Peking University Institute of Mental Health	yuxin@bjmu.edu.cn
China	Xinli Chi	School of Psychology, Shenzhen University	xinlich@126.com
Belgium	Philippe de Timary	UCLouvain, Institute of Neuroscience and Department of Adult Psychiatry	Philippe.detimary@uclouvain.be
Belgium	Pierre Maurage	Research Institute of Psychological Sciences, UCLouvain, 1348 Louvain la Neuve, Belgium	pierre.maurage@uclouvain.be
Belgium	Ruud van Winkel	KU Leuven, Department of Neurosciences	ruud.vanwinkel@kuleuven.be
Mexico	Bernardo Ng	Asociación Psiquiátrica Mexicana	bng@sunvalleyb.com
Mexico	Edilberto Pena	Asociación Psiquiátrica Mexicana	epena@cisne.mx
Mexico	Ramon Arellano	Asociación Psiquiátrica Mexicana	jramonarellanoc@hotmail.com
Mexico	Raquel Roman	Asociación Psiquiátrica Mexicana	raquelrr@hotmail.com
Mexico	Thelma Sanchez	Asociación Psiquiátrica Mexicana	marsan2@prodigy.net.mx
Russia	Larisa Movina	Moscow Research Institute of Psychiatry	movina_larisa@bk.ru
Russia	Mariyam Shukurova	Moscow Research Institute of Psychiatry	mariyam.shukurova@gmail.com
Russia	Renne Mun	Moscow Research Institute of Psychiatry	shushwarc@rambler.ru
Russia	Veronica Rubaylova	Moscow Research Institute of Psychiatry	ve.rubaylova@gmail.com
Portugal	Pedro Morgado	(1) Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; (2) ICVS/3B's - PT Government Associate Laboratory, Braga/Guimarães, Portugal;	pedromorgado@med.uminho.pt

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Portugal	Sofia Brissos	Lisbon's Psychiatric Hospitalar Centre, Department of Psychiatry	brissos.sofia@gmail.com
Belarus	Oleg Aizberg	Belarusian Medical Academy of Postgraduate Education	oleg.aizberg@gmail.com
Belarus, Russia, Switzerland	Anna Mosina	Cliecia AG, Wetzikon Psychiatric Centre, Switzerland	annamosina.md@gmail.com
Belarus, Russia, Switzerland	Damir Krinitski	Integrated Psychiatry Winterthur (IPW), Switzerland	damir.krinitski@gmail.com
Uganda	James Mugisha	Faculty of Sociology and Social Administration - Kyambogo University - Kyambogo Hill, Kampala, Uganda	Jmmugi77@hotmail.com
Iran	Dena Sadeghi-Bahmani (Citing: Sadeghi Bahmani D)	1) Department of Physical Therapy, University of Alabama at Birmingham, Birmingham, Alabama, USA; 2) University of Basel, Psychiatric Clinics (UPK), Center of Affective, Stress and Sleep Disorders (ZASS), Basel, Switzerland;	denab@uab.edu
Iran	Farshad Sheybani	Department of Clinical Psychology, School of Behavioral Sciences and Mental Health, Tehran Institute of Psychiatry- Iran University of Medical Sciences, Tehran, Iran	sheybani.f@iums.ac.ir
Iran	Masoud Sadeghi	Medical Biology Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran	sadeghi_mbrcc@yahoo.com
Iran	Samira Hadi	Kharazmi University, Tehran, Iran.	hadi.samira@yahoo.com
Iran	Serge Brand	1) University of Basel, Psychiatric Clinics (UPK), Center of Affective, Stress and Sleep Disorders (ZASS), Basel, Switzerland; 2) University of Basel, Department of Sport, Exercise, and Health, Division of Sport Science and Psychosocial Health, Basel, Switzerland	serge.brand@upk.ch
Chile	Antonia Errazuriz	Pontificia Universidad Católica de Chile, Department of Psychiatry, School of Medicine.	anerrazuriz@uc.cl
Chile	Nicolas Crossley	Pontificia Universidad Católica de Chile, Department of Psychiatry, School of Medicine.	ncrossley@uc.cl
Serbia	Dragana Ignjatovic Ristic	Department of Psychiatry, Faculty of Medical Sciences, University of Kragujevac, Serbia	draganaristic4@gmail.com
Colombia	Carlos López-Jaramillo	University of Antioquia, Department of Psychiatry	carlos.lopez20@udea.edu.co, carlosopezjaramillo@gmail.com

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
Cyprus	Dimitris Efthymiou	University of Nicosia Department of Life and Health Sciences	dimitrisefthy@gmail.com
Cyprus	Kyriakos Felekkis	University of Nicosia Department of Life and Health Sciences	felekkis.k@unic.ac.cy
India	Praveenlal Kuttichira	Jubilee Mission Medical College & Research Institute	drpraveenlalkuttichira@gmail.com
India	Roy Abraham Kallivayalil	Pushpagiri Institute of Medical Sciences, Thiruvalla, Kerala, Dept. of Psychiatry	roykalli@gmail.com
Pakistan	Afzal JAved	Chairman, Pakistan Psychiatric Research Centre- Fountain House, Lahore Pakistan	afzalj@gmail.com
Pakistan	Muhammad Iqbal Afridi	Dean, Faculty of Psychiatry, College of Physicians and Surgeons Pakistan; Dean, Jinnah Postgraduate Medical Centre Karachi Pakistan; Dean, Faculty of Medicine, Jinnah Sindh Medical University, Karachi Pakistan.	driqbalafriidi@yahoo.com
Nigeria	Bawo James	Department of Clinical Services, Federal Neuropsychiatric Hospital, P.M.B 1108, Benin-City, Nigeria	bawojames@yahoo.com
Nigeria	Omonefe Joy Seb- Akahomen	Department of Psychiatry, Irrua Specialist Teaching Hospital, P.M.B 08. Irrua, Edo State, Nigeria	sebahomen@gmail.com
Canada	Andre F. Carvalho	Centre for Addiction and Mental Health (CAMH)	Andre.Carvalho@camh.ca
Canada	Jeff Daskalakis	University of Toronto, Canada	Jeff.Daskalakis@camh.ca
Canada	Lakshmi N Yatham	University of British Columbia	l.yatham@ubc.ca
Canada	Lin Yang	Alberta Health Services, University of Calgary, Canada	lin.yang@ahs.ca
Egypt	Tarek Okasha	Ain Shams University	tarek.okasha@gmail.com
Ireland	John Wells	Waterford Institute of Technology, School of Health Sciences	jswells@wit.ie
Algeria	Aïcha Dahdouh	Department of Psychiatry-AddictologyOran 1 University, Algeria	aichadahdouh@gmail.com
Sweden	Björn Gerdle	Linköping University, Department of Health, Medicine and Caring Sciences	bjorn.gerdle@liu.se
Sweden	Jari Tiihonen	Department of Clinical Neuroscience, Karolinska Institutet	jari.tiihonen@ki.se

## COH-FIT synopsis

Country	Name, Surname	Affiliation	Contact
South Korea	Jae Il Shin	Department of Pediatrics, Yonsei University College of Medicine	SHINJI@yuhs.ac
South Korea	Jinhee Lee	Yonsei University Wonju College of Medicine, Department of Psychiatry	jinh.lee95@yonsei.ac.kr
Tunisia	Ahmed Mhalla	University of Monastir, Research Unit "Vulnerability to Mental Disorders" LR05ES10	ahmed.mhalla@yahoo.fr
Tunisia	Ferid Zaafrane	MD, Professor of psychiatry, laboratory research "Vulnerability to mental disorders", Faculty of Medicine of Monastir, University of Monastir, Monastir, Tunisia	
Tunisia	Lotfi Gaha	University of Monastir, Research Unit "Vulnerability to Mental Disorders" LR05ES10	gaha.lotfi@yahoo.fr
Tunisia	Takoua Brahim	Department of psychiatry - University hospital of Monastir University of Monastir	takoua.brahim@yahoo.com
Kazakhstan	Kuanysh Altynbekov	Republican Scientific and Practical Center of Mental Health	kuanysh_altyn@mail.ru
Kazakhstan	Nikolay Negaj	Republican Scientific and Practical Center of Mental Health	nick_negaj@mail.ru
Kazakhstan	Saltanat Nurmagambetova	Republican Scientific and Practical Center of Mental Health	saya_n@yahoo.com
Palestine	Yasser Abu Jamei	Gaza Community Mental Health Programme	yasser@gcmhp.net
Israel	Mark Weiser	Sheba Medical Center	mweiser@netvision.net.il
Germany	Christoph Correll	Feinstein Institutes for Medical Research	Correll, Christoph U <CCorrell@northwell.edu>