




# ESCAP CovCAP survey of heads of academic departments to assess the perceived initial (April/May 2020) impact of the COVID-19 pandemic on child and adolescent psychiatry services

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## Abstract

In April 2020, the European Society for Child and Adolescent Psychiatry (ESCAP) Research Academy and the ESCAP Board launched the first of three scheduled surveys to evaluate the impact of the coronavirus disease 2019 (COVID-19) pandemic on child and adolescent psychiatry (CAP) services in Europe and to assess the abilities of CAP centers to meet the new challenges brought on by the crisis. The survey was a self-report questionnaire, using a multistage process, which was sent to 168 heads of academic CAP services in 24 European countries. Eighty-two responses (56 complete) from 20 countries, representing the subjective judgement of heads of CAP centers, were received between mid-April and mid-May 2020. Most respondents judged the impact of the crisis on the mental health of their patients as medium (52%) or strong (33%). A large majority of CAP services reported no COVID-19 positive cases among their inpatients and most respondents declared no or limited sick leaves in their team due to COVID-19. Outpatient, daycare, and inpatient units experienced closures or reductions in the number of treated patients throughout Europe. In addition, a lower referral rate was observed in most countries. Respondents considered that they were well equipped to handle COVID-19 patients despite a lack of protective equipment. Telemedicine was adopted by almost every team despite its sparse use prior to the crisis. Overall, these first results were surprisingly homogeneous, showing a substantially reduced patient load and a moderate effect of the COVID-19 crisis on psychopathology. The effect on the organization of CAP services appears profound. COVID-19 crisis has accelerated the adoption of new technologies, including telepsychiatry.

**Keywords** COVID-19 · Child and adolescent psychiatry · Telepsychiatry · Europe

## Introduction

The coronavirus disease 2019 (COVID-19) pandemic is having a strong impact on the mental health of children and adolescents, their parents and families, and whole communities [1, 2]. The fear of the disease, as well as the lockdown measures put in place by governments such as social distancing,

quarantines, school closures, and intense hygiene measures, have raised concerns that existing mental health problems may worsen [3], or trigger persons to experience new mental health problems [4]. In this context, child and adolescent psychiatry (CAP) services have a key role to play during the pandemic and thereafter to mitigate the effects of the crisis on the mental health of children and youth.

In April 2020, the European Society for Child and Adolescent Psychiatry (ESCAP) Research Academy, a network of young European researchers in CAP [5], and the ESCAP Board launched a survey to estimate the impact of COVID-19 on CAP services in Europe and to assess the capability of CAP centers to meet the new challenges brought on by the crisis. University heads of CAP services in ESCAP membership countries were contacted by email and invited to complete an online survey. Cross-sectional surveys are re-scheduled for the end of the year 2020 and spring 2021.

The members of the COVID-19 Child and Adolescent Psychiatry Consortium group are mentioned in "Acknowledgements" section.

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## Methods

The survey is a self-report questionnaire, using a multi-stage process based on a Delphi approach [6]. JH, PK, AR, and LK first drew up a list of 60 items related to the topic. The items were ranked by importance then reduced and assembled in a final 38-item questionnaire, which was revised and approved by members of the ESCAP Board. It included items related to the following sections: current situation of the respondent's country or region; screening for COVID-19 in CAP service; COVID-19-induced changes in psychopathology; provision of CAP services; effects on teams, size and capacity of CAP services and current use of CAP services. A last section of the questionnaire allowed for free comments.

The REDCap® web application was used to securely diffuse an email inviting to fill out an online questionnaire and to anonymously collect the data. Email addresses from heads of CAP services working in university hospitals were provided by members of the ESCAP Board and the ESCAP Research Academy network. For this first step of the CovCAP survey, we did not receive contact details for the following eleven ESCAP member countries in due time: Bosnia & Herzegovina, Croatia, Finland, Iceland, Israel, Lithuania, Portugal, Romania, Russia, United Kingdom, and Ukraine. Questionnaires were completed between April 16th and May 19th, 2020; the respondents were asked if they wanted to be included in the COVID-19 Child and Adolescent Psychiatry Consortium (see Table 1 and author list). Survey response data were analyzed using simple frequency statistics. Due to missing items, we provide the total number of respondents for the respective item in relevant paragraphs of the main text. The comments of 19 participants were assessed using thematic analysis to identify, analyze, and report patterns (i.e., themes) within data [7]. We systematically coded interesting features in the data and collated them into potential themes which were reported in the manuscript by specifying the number of occurrences. To protect anonymity, findings

per country are presented only if at least two CAP services provided information. The data were pooled for the five countries with only a single informant (category "Others" in Tables 1 and 2).

## Results

### Characteristics of respondents

168 heads of CAP university services in 24 countries were contacted by email and 82 responded providing an overall response rate of 49% (Table 1). Among all questionnaires returned, 56 were filled in completely; 19 included free comments. Twenty countries were represented (Tables 1 and 2), among which Germany had the highest number of responses ( $n = 18/82$  respondents; 22%). A single response only was obtained from The Netherlands, Estonia, Bulgaria, Serbia, and Slovakia. We did not get any replies from Albania, Cyprus, Norway, and Sweden.

### Lockdown measures and school closures by country

All respondents reported lockdown measures in their countries, mostly rated as strict ( $n = 48/80$ ; 60%). Schools had been closed "fully" or "partially" (combined  $n = 79/81$ ; 98%) for a mean of almost 6 weeks (mean = 5.8 weeks; standard deviation; SD: 1.5) upon submission of the questionnaire.

### COVID-19 infections among patients and therapeutic teams

The vast majority of CAP services reported no history of COVID-19 positive cases among their inpatients ( $n = 52/63$ ; 83%). Most respondents ( $n = 44/57$ ; 77%) declared no or very limited (< 1% of the team) current sick leave in their team due to COVID-19. Twenty-four (out of 58; 41%)

**Table 1** Number of head of child and adolescent psychiatry services contacted and number of answers per country

Nationalities of respondents	AT	BE	CZ	DK	FR	DE	GR	HU	IE	IT	PL	SI	ES	CH	TR	Others <sup>a</sup>	Total
Number of head of CAP services contacted	8	9	5	12	10	33	11	10	16	2	5	3	10	8	9	17	168
Number of respondents	2	2	2	5	5	18	6	7	4	2	2	2	5	6	9	5	82
Number of complete questionnaires	2	1	1	3	4	14	5	4	3	2	2	2	2	3	3	5	56

International Organization for Standardization (ISO) countries codes: *AT* Austria, *BE* Belgium, *CZ* Czech Republic, *DK* Denmark, *FR* France, *DE* Germany, *GR* Greece, *HU* Hungary, *IE* Ireland, *IT* Italy, *PL* Poland, *SI* Slovenia, *ES* Spain, *CH* Switzerland, *TR* Turkey

*CAP* child, and adolescent psychiatry, *SD* standard deviation

<sup>a</sup>A single response only was obtained from The Netherlands, Estonia, Bulgaria, Serbia and Slovakia and data from these countries are not presented individually to protect anonymity of answers (i.e. number of questionnaires filled < 2)

We were, unfortunately, unable to obtain contact information in time for this first step of the CovCAP survey for eleven countries (Bosnia & Herzegovina, Croatia, Finland, Iceland, Israel, Lithuania, Portugal, Romania, Russia, United Kingdom and Ukraine). We did not receive replies from Albania, Cyprus, Norway and Sweden

**Table 2** Main answers of respondents to the initial COVID-19 questionnaire (see the respective item in first column for the number of available responses)

	AT	BE	CZ	DK	FR	DE	GR	HU	IE	IT	PL	SI	ES	CH	TR	Others <sup>1</sup>	Total
<b>Incidence of COVID-19 and reported lockdown measures and school closures by country</b>																	
<i>Incidence COVID-19/100,000 (30.04.2020)<sup>2</sup></i>	171.6	418.6	71.7	161.5	256.3	194.6	24.9	28.7	417.4	339.8	34.0	68.7	456.5	341.9	142.5	NA	
<i>Type of COVID-19 lockdown (n=80)</i>																	
None	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loose	0	0	0	2	0	6	0	3	0	0	0	0	0	3	2	2	18 (22.5%)
Strict	2	2	2	3	4	9	3	4	3	0	2	0	3	2	7	2	48 (60%)
Very strict	0	0	0	0	1	1	3	0	1	2	0	2	2	1	0	1	14 (17.5%)
<i>School closure (n=81)</i>																	
No	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2 (2.5%)
Partially	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	6 (7.4%)
Yes	2	2	2	1	5	15	6	6	4	2	2	2	5	6	9	4	73 (90.1%)
<i>Number of weeks of school closure (n=76; mean (SD))</i>	5.5 (2.1)	5 (0)	7.3 (1.1)	5.3 (1.9)	5 (1.9)	5.8 (1.3)	5.5 (1)	5.7 (2.3)	6 (2.2)	4.5 (0.7)	4.5 (0.7)	5 (0)	6.6 (1.1)	5.2 (0.8)	7.2 (1.3)	6 (1.4)	5.8 (1.5)
<b>Reported COVID-19 infections among patients and therapeutic teams</b>																	
<i>Please indicate the total number of confirmed (tested positive) COVID-19 inpatients you have had in your CAP service to date. (n=63)</i>																	
None	2	1	1	2	3	15	6	5	3	1	1	2	1	2	2	5	52 (82.5%)
1	0	0	0	0	0	1	0	0	0	1	1	0	2	1	0	0	6 (9.5%)
>1	0	0	0	1	2	0	0	1	0	0	0	0	1	0	0	0	5 (7.9%)
<i>Has a patient and/or staff member contracted COVID-19 from a positive patient in your clinic? (please answer affirmatively even if transmission has not been proven) (n=58)</i>																	
No	2	1	1	3	3	15	5	4	3	1	2	2	0	2	3	5	52 (89.7%)
Single patient	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
More than one patient	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single staff member	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2 (3.4%)
More than one staff member	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0	0	4 (6.9%)
<i>How many of your staff members have been infected (tested positive) with COVID-19 to date? (n=58)</i>																	
Not aware of a single case	2	0	0	1	0	10	5	2	3	1	2	1	1	0	3	3	34 (58.6%)
<1%	0	1	1	2	0	2	0	2	0	0	0	1	0	2	0	0	11 (19%)
1-5%	0	0	0	0	3	2	0	0	0	0	0	0	1	1	0	2	9 (15.5%)
5-10%	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	4 (6.9%)
10-25%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>If applicable, how many staff have died due to the COVID-19? (n=40)</i>																	
0	2	1	1	2	4	11	1	3	2	1	0	2	1	3	2	3	39 (97.5%)
1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1 (2.5%)
<i>Currently (today), how many numbers of staff are on sick leave, most likely due to Covid-19? (n=57)</i>																	
Not aware of a single case	2	0	0	0	0	7	5	3	1	0	2	1	1	1	3	3	29 (50.9%)
<1%	0	0	1	3	3	4	0	1	0	1	0	1	1	0	0	0	15 (26.3%)
1-5%	0	1	0	0	2	2	0	0	0	0	0	0	0	1	0	2	8 (14%)
5-10%	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3 (5.3%)
10-25%	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2 (3.5%)
> 50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Have you had any staff that have been re-assigned to critical care? (n=57)</i>																	
Yes	0	0	0	2	3	4	0	1	0	0	0	1	0	0	1	0	12 (21.1%)
No	2	1	1	1	2	11	5	3	2	2	2	1	2	3	2	5	45 (78.9%)
<b>Screening for COVID-19 in CAP services</b>																	
<i>When admitting an inpatient, how do you screen for COVID-19? (n=61)</i>																	
As usual (reference 2019, no screening for COVID-19 infection)	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3 (4.9%)
We screen for signs of infection in a patient prior to admission	0	0	0	1	0	2	2	0	0	0	2	0	3	0	0	1	11 (18%)
We screen for signs of infection in a patient and their household members prior to admission	2	1	0	1	2	9	1	4	1	1	0	0	2	2	2	1	29 (47.5%)
We require a negative COVID-19 test	0	0	1	1	3	5	0	1	0	1	0	2	0	1	0	3	18 (29.5%)
<i>How rapidly can you obtain a COVID-19 test result for an inpatient? (n=61)</i>																	
We have no experience; no inpatient has been tested by us or upon our request	0	0	0	0	0	0	3	1	1	0	0	0	1	0	1	0	7 (11.5%)
Within 24 hours	2	0	1	3	2	11	1	4	1	2	0	2	2	2	0	4	37 (60.7%)
24-48 hours	0	1	0	0	3	3	1	1	1	0	2	0	0	1	1	0	14 (23%)
48-72 hours	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2 (3.3%)
72 hours	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1 (1.6%)

Table 2 (continued)

Reaction to COVID-19 at the organizational level and the effect on service provision																	
<i>Impact on service provision of services to patients (n=59)</i>																	
Not at all	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2 (3.3%)
To a minor degree only	0	1	0	1	0	6	1	0	0	0	0	0	0	0	1	0	10 (16.9%)
To a major degree	2	0	1	2	3	8	3	5	3	1	2	2	1	1	1	5	40 (67.8%)
Extremely	0	0	0	0	2	1	1	0	0	1	0	0	1	1	0	0	7 (11.9%)
<i>How have the regulatory measures placed in your country affected your clinical services? (n=56)</i>																	
Closure of day care units	2	0	0	1	5	11	2	2	2	1	2	2	1	3	2	2	38 (67.9%)
Closure of specific inpatient wards/units	2	0	0	0	2	5	1	2	1	0	1	1	0	1	1	1	18 (32.1%)
Restricted access to our outpatient unit (e.g. for medically relevant cases or emergencies only)	2	1	1	2	4	11	5	4	3	2	2	2	2	2	3	4	50 (89.3%)
<i>Restrictions in place for parental access to inpatients (n=55)</i>																	
Yes	1	1	1	3	5	10	3	2	2	2	2	2	1	2	0	4	41 (74.5%)
No	1	0	0	0	0	5	0	3	0	0	0	0	1	1	2	1	14 (25.5%)
<i>Have you changed policies with respect to contacts between patients and caregivers? (n=57)</i>																	
No	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	4 (7%)
Slight restrictions	0	1	0	1	0	5	0	0	0	1	0	0	0	0	0	1	9 (15.8%)
Moderate restrictions	1	0	0	2	1	6	3	3	1	0	0	0	2	1	2	1	23 (40.4%)
Severe restrictions	1	0	1	0	3	4	1	1	2	1	2	2	0	1	0	2	21 (36.8%)
<i>Have any parts of your service been closed or transformed for emergency COVID-19 use? (n=59)</i>																	
Yes	2	0	1	2	4	11	1	4	1	1	1	1	0	3	1	2	35 (59.3%)
No	0	1	0	1	1	4	4	1	2	1	1	1	2	0	2	3	24 (40.7%)
<i>If you can, please indicate the average daily number of inpatients (beds) (pertains to estimated average number of inpatients per day in 2019 irrespective of initial referrals or recontacts) at your hospital. (n=44; mean (SD))</i>	29 (5.7)	-	15 (-)	34.7 (31.0)	33.3 (23.6)	50.8 (19.6)	6 (-)	42.5 (10.6)	7 (9.9)	11 (5.7)	28 (0)	17 (9.9)	15.5 (21.9)	35 (28.3)	2 (-)	19.4 (4.7)	31.9 (22)
<i>Please provide today's numbers for inpatients (number of beds occupied). If you are filling the questionnaire during the weekend, estimate the average occupancy during the last week. (n=47; mean (SD))</i>	15 (9.9)	-	9 (-)	29 (27.1)	16 (16.2)	31.4 (13.2)	2 (-)	2.5 (2.4)	7 (9.9)	11.5 (9.2)	6.5 (6.4)	11 (1.4)	15.5 (21.9)	34 (32.5)	0 (-)	8.2 (4.8)	18.1 (16.6)
<i>If you can, please indicate the average daily number of outpatients (pertains to estimated average number of outpatients per day in 2019 irrespective of initial referrals or recontacts) at your hospital. (n=46; mean (SD))</i>	14 (8.5)	-	8 (-)	200 (-)	81.3 (45.0)	45.9 (31.1)	19.6 (12.2)	50 (14.1)	13.5 (9.2)	35 (7.1)	10.5 (6.4)	20 (14.1)	82.5 (95.5)	172.5 (109.6)	66.7 (41.6)	224 (378.9)	69.9 (135.3)
<i>Please provide today's numbers for outpatients (outpatient visits). If you are filling the questionnaire during the weekend, estimate the average occupancy during the last week. (n=48; mean (SD))</i>	4 (5.7)	-	3 (-)	200 (-)	12.3 (15.7)	26 (22.8)	3 (2.1)	13.5 (18.4)	10 (14.1)	27.5 (31.8)	9.5 (0.7)	8.5 (2.1)	75 (21.2)	70 (42.4)	15.7 (10.7)	23.8 (8.5)	24.7 (35.2)
<i>On a scale of 0 to 100, how well is your team mentally equipped to handle COVID-19 patients? (n=57; mean (SD))</i>	65 (21.2)	-	62 (-)	59 (16.5)	74 (22.0)	67.6 (15.9)	55.4 (31.3)	60 (11.5)	44.7 (33.3)	52 (2.8)	67.5 (24.7)	29 (11.3)	63 (24.0)	68 (10.1)	78.3 (7.6)	60.4 (11.7)	60.4 (12.0)
<i>What organization-directed interventions has your service taken to reduce the stress on your team members? (n=59)</i>																	
None	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1 (1.7%)
We allow for changes in the work schedule	2	1	1	1	4	13	4	4	1	1	2	1	2	2	3	5	47 (79.7%)
We allow parents to stay at home if their children are unable to attend school	2	0	1	1	2	10	5	2	1	0	1	2	1	1	2	4	35 (59.3%)
Extra childcare (which also accept schoolers) organized by your institution	1	1	0	1	3	6	0	1	0	0	0	1	0	1	0	1	16 (27.1%)
We encourage home office but do not allow patient contacts	1	0	1	0	2	5	3	2	1	0	1	0	0	2	1	3	22 (37.3%)
We encourage the use of home-based calls/video conferences to counsel/treat patients and families	2	0	0	1	5	7	3	3	2	2	1	0	2	3	2	2	35 (59.3%)

Table 2 (continued)

Reaction to COVID-19 at the organizational level and the effect on service provision																		
We have measures in place to improve team-work	0	1	0	1	3	3	0	2	2	1	0	0	1	1	1	1	17 (28.8%)	
Supervisions	2	1	0	0	4	4	1	1	0	1	0	1	1	1	3	2	22 (37.3%)	
Mental health training program	0	0	0	3	1	1	2	0	0	0	0	0	0	0	2	1	10 (16.9%)	
Other	0	0	0	1	2	1	0	0	0	0	1	0	0	0	0	0	5 (8.5%)	
<i>On a scale of 0 to 100, how well is the infrastructure of your service equipped to handle COVID-19 patients? (n=56; mean (SD))</i>	59 (36.8)	-	66 (-)	68 (7.5)	77.6 (20.5)	59.1 (22.0)	40.2 (30.7)	53 (26.8)	27.7 (29.3)	39.5 (3.5)	60 (14.1)	40.5 (14.8)	82 (-)	68.3 (24.6)	76.7 (5.8)	42.4 (35.9)	57.2 (19.6)	
<i>Does your team have appropriate personal protective equipment (masks, gloves, eye shields, etc.)? (n=58)</i>	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1 (1.7%)	
Partially	1	1	1	0	3	6	4	3	3	1	2	2	2	1	1	3	34 (58.6%)	
Yes, fully protected	1	0	0	3	2	9	1	1	0	1	0	0	0	2	2	1	23 (39.7%)	
<i>Have you established a crisis hotline for families/adolescents with respect to COVID-19 and its implications? (e.g. social distancing/quarantine) (n=61)</i>	Yes	2	1	1	1	3	9	1	4	0	1	0	2	2	2	1	3	33 (54.1%)
No	0	0	0	2	2	7	4	1	3	1	2	0	1	1	2	2	28 (45.9%)	
<i>Have your physicians/psychologists adopted the use of telemedicine to replace clinical appointments? (n=60)</i>	No	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	3 (5%)	
Yes	2	1	1	3	4	16	5	5	2	2	2	2	3	3	2	4	57 (95%)	
<i>Was telemedicine already available in your CAP service before the pandemic? (n=61)</i>	No	2	0	0	1	3	14	5	4	3	2	2	0	2	3	3	5	49 (80.3%)
Yes	0	1	1	2	2	2	0	1	0	0	0	2	1	0	0	0	12 (19.7%)	
<i>What proportion of your physicians/psychologists are treating patients and their caregivers by telephone? (n=60)</i>	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1 (1.6%)	
0.1-4.9%	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2 (3.3%)	
5.0-9.9%	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2 (3.3%)	
10-24.9%	1	0	0	0	1	5	0	1	0	1	0	0	0	1	0	2	12 (20%)	
25-49.9%	0	0	0	1	1	2	2	2	2	0	0	0	0	0	0	0	8 (13.3%)	
50-74.9%	0	1	0	1	1	1	0	1	1	1	2	0	0	2	0	1	12 (20%)	
> 75%	1	0	0	1	2	5	3	1	1	0	0	2	3	0	2	2	23 (38.3%)	
<i>What proportion of your physicians/psychologists are treating patients and their caregivers by videoconference? (n=61)</i>	0%	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3 (4.9%)	
0.1-4.9%	1	0	0	0	1	2	1	0	2	0	0	1	1	1	1	0	11 (18%)	
5.0-9.9%	0	0	1	0	0	1	0	2	0	0	1	0	0	0	0	0	5 (8.2%)	
10-24.9%	0	0	0	2	1	3	0	1	0	1	1	0	1	0	0	2	12 (19.7%)	
25-49.9%	1	0	0	0	1	6	2	1	0	0	0	0	0	0	0	2	13 (21.3%)	
50-74.9%	0	1	0	1	0	1	1	0	1	0	0	1	0	1	1	1	9 (14.8%)	
> 75%	0	0	0	1	2	1	1	1	0	1	0	0	0	1	0	0	8 (13.1%)	
<i>Have you established a specific procedure (e.g. videoconferences) to support bereaved children to deal with COVID-19-related grief or trauma? (n=61)</i>	No	2	0	0	3	2	13	4	5	3	2	2	2	3	3	2	5	51 (83.6%)
Yes	0	1	1	0	3	3	3	1	0	0	0	0	0	0	1	0	10 (16.4%)	
<i>What are your current major concerns related to the pandemic with regard to service provisions? (n=58)</i>	We are not sufficiently in contact with patients and families in need	1	1	0	2	2	12	5	4	2	1	2	2	2	2	0	5	43 (74.1%)
We are not able to maintain specific therapeutic groups for distinct groups of patients	2	0	1	3	4	11	3	2	1	1	1	2	1	3	1	4	40 (69%)	
Members of my team are not as attentive as usual to their patients	0	0	0	0	0	2	1	1	0	0	0	0	0	1	0	0	5 (8.6%)	
Meetings to manage the crisis prevent me from doing my work	0	0	0	0	0	10	0	1	1	1	0	0	1	3	0	1	18 (31%)	
We are running a deficit because we treat too few patients	2	0	1	1	1	6	1	3	1	1	2	0	1	2	1	4	27 (46.6%)	
Other	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0	6 (10.3%)	
<b>Perceived impact on patients and their psychopathology</b>																		
<i>How do you perceive the impact of COVID-19 pandemic on the mental health of children and adolescents in your region? (n=64)</i>	Negligible	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2 (continued)

Low	0	0	0	0	0	3	3	2	0	1	0	0	1	0	0	0	10 (15.6%)
Medium	2	1	1	3	1	8	2	2	1	1	1	1	2	2	3	2	33 (51.6%)
Strong	0	0	0	0	4	5	1	2	2	0	1	1	0	1	1	3	21 (32.8%)
Extreme	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Has the COVID-19 pandemic had an influence on the contents of the psychopathology your patients present with? (e.g. fear of virus contamination in OCD, anxiety, psychotic disorders) (n=63)</i>																	
I am not aware of a single patient	1	0	0	1	0	5	2	1	1	0	2	1	2	1	0	1	18 (28.6%)
< 5%	1	0	0	1	4	8	3	2	0	0	0	1	0	2	0	2	24 (38.1)
5.0-9.9%	0	0	1	0	0	2	1	1	1	1	0	0	0	0	1	1	9 (14.3%)
10-25%	0	1	0	0	1	1	0	2	1	0	0	0	0	0	1	1	8 (12.7%)
>25%	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0	4 (6.3%)	
<i>Are you seeing changes in the number of referrals or requests for assessments? (n=64)</i>																	
No	0	1	1	0	0	8	2	2	0	1	0	0	1	0	0	1	17 (26.6%)
Yes, a decline	2	0	0	3	5	6	3	3	2	1	2	1	1	3	3	4	39 (60.9%)
Yes, an increase	0	0	0	0	0	2	1	1	1	0	0	1	1	0	1	0	8 (12.5%)

International Organization for Standardization (ISO) countries codes: AT, Austria; BE, Belgium; CZ, Czech Republic; DN, Denmark; FR, France; DE, Germany; GR, Greece; HU, Hungary; IE, Ireland; IT, Italy; PL, Poland; SI, Slovenia; ES, Spain; CH, Switzerland; TR, Turkey.

Abbreviations: CAP, child and adolescent psychiatry; SD, standard deviation.

<sup>a</sup>A single response only was obtained from The Netherlands, Estonia, Bulgaria, Serbia and Slovakia and data from these countries are not presented individually to protect anonymity of answers (i.e. number of questionnaires filled <2).

<sup>b</sup>The incidence was calculated on the 30<sup>th</sup> April based on the following data:

- Number of inhabitants in 2020 (source: United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2019 Revision. (Medium-fertility variant)).
- Number of COVID-19 cases (source: COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University).

International Organization for Standardization (ISO) countries codes: AT Austria, BE Belgium, CZ Czech Republic, DK Denmark, FR France, DE Germany, GR Greece, HU Hungary, IE Ireland, IT Italy, PL Poland, SI Slovenia, ES Spain, CH Switzerland, TR Turkey

CAP child and adolescent psychiatry, SD standard deviation

<sup>a</sup>A single response only was obtained from The Netherlands, Estonia, Bulgaria, Serbia, and Slovakia and data from these countries are not presented individually to protect anonymity of answers (i.e. number of questionnaires filled <2)

<sup>b</sup>The incidence was calculated on the 30th April based on the following data: Number of inhabitants in 2020 (source: United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2019 Revision. (Medium-fertility variant))

Number of COVID-19 cases (source: COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University)

reported that team members had tested positive for COVID-19 but for the majority of them, it represented less than 1% of their team.

## Screening for COVID-19 in CAP services

Prior to any hospital admission, approximately half of the CAP services only screened patients and family/household members for signs of infection, but 18/61 (30%) systematically required a negative COVID-19 test. A majority of services ( $n=37/61$ ; 61%) were able to obtain a COVID-19 test within 24 h.

## The reaction to COVID-19 at the organizational level and the effect on service provision

The perceived mental condition of CAP teams to handle the crisis was considered as good (mean score = 62.6 on a scale 0–100; SD = 19.3). The main interventions (endorsed by > 59% of respondents) used to reduce the stress of team members were allowing changes in the work schedule, encouraging home office, and allowing parents to stay at home to take care of their children. Similarly, respondents

considered that their infrastructure was reasonably well equipped to handle COVID-19 patients (mean score = 56.6 on a scale 0–100; SD = 25.4) despite the fact that most services were lacking personal protective equipment ( $n=34/58$ ; 59% reported being only “partially” equipped). Telemedicine was used as a substitute for personal contacts with patients by an overwhelming majority of teams ( $n=57/60$ ; 95%), mostly by telephone (i.e. 58% of respondents had a majority of their physicians /psychologists treating patients over the phone vs. 28% for videoconferences) despite the fact that telemedicine was used sparsely before the pandemic ( $n=12/61$ ; 20%). Only 10/61 (16%) respondents had established a specific procedure to support bereaved children to deal with COVID-19-related grief or trauma. Over 50% of respondents indicated that a COVID-19 hotline had been established for patients and their families.

A clear majority of respondents reported a major or extreme impact of COVID-19 on service provision (combined  $n=47/59$ ; 80%), with restricted access to outpatient units ( $n=50/56$ ; 89%) and closure of daycare ( $n=38/56$ ; 68%) and inpatient ( $n=18/56$ ; 32%) units. Thirty-five respondents out of 59 (59%) reported that parts of their

service had been closed or transformed for emergency COVID-19 use (not limited to CAP patients).

The vast majority ( $n = 21/24$ ; 88%) of CAP services reported a substantial decrease in the average daily number of outpatients and beds occupied. Overall, the reduction was roughly two-thirds for outpatients ( $69.9 \pm 135.3$  in 2019 to  $24.7 \pm 35.2$  during COVID-19) and one-third for inpatients ( $31.9 \pm 22$  versus  $18.1 \pm 16.6$ ). Major concerns affirmed by > 30% of respondents with regards to service provisions were: i) insufficient contact with patients and their families; ii) not being able to maintain specific therapeutic groups; iii) running a deficit because of treating too few patients, and iv) being prevented from doing clinical work due to more meetings to manage the crisis. Reassuringly, only five respondents (8.5%) perceived their team members as less attentive to their patients than usual. Moderate or severe restrictions were imposed on contacts between patients and caregivers in 77% of the departments (44/52).

### Perceived impact on patients and their psychopathology

Roughly half of the respondents observed a medium impact on their patients' mental health. At a national level and upon consideration of only countries providing four or more responses, the impact of the crisis on mental health seemed to be more related to the infection rate than to the severity of lockdown measures or the duration of school closure. French respondents, for instance, mainly reported a strong impact ( $n = 4/5$ ; 80%); France experienced a strict lockdown and reported a high incidence of infections (256.3/100,000 on April 30, 2020). In contrast, Greece which also experienced an early and strict lockdown but succeeded in maintaining a low rate of infection, ten times lower than in France (24.9/100,000 on April 30, 2020), reported mainly a low impact of the COVID-19 pandemic on pediatric mental health. Results were rather divergent in Germany (incidence 194.6/100,000; April 30), with a majority of respondents reporting a medium impact ( $n = 8/16$ ; 50%), five (31%) a strong, and three (19%) a low impact, potentially reflecting regional differences in infection rates.

While respondents reported an increase in the amount of cases of anxiety disorders (36%), conduct disorders (27%), adjustment disorders (24%), obsessive–compulsive disorders (24%), and suicidal crises (24%), 32% of them highlighted no change (Fig. 1). Most respondents estimated that the COVID-19 pandemic had either no influence on the contents of their patients' psychopathology ( $n = 18/63$ ; 29%) or in less than 5% of their patients ( $n = 24/63$ ; 38%).

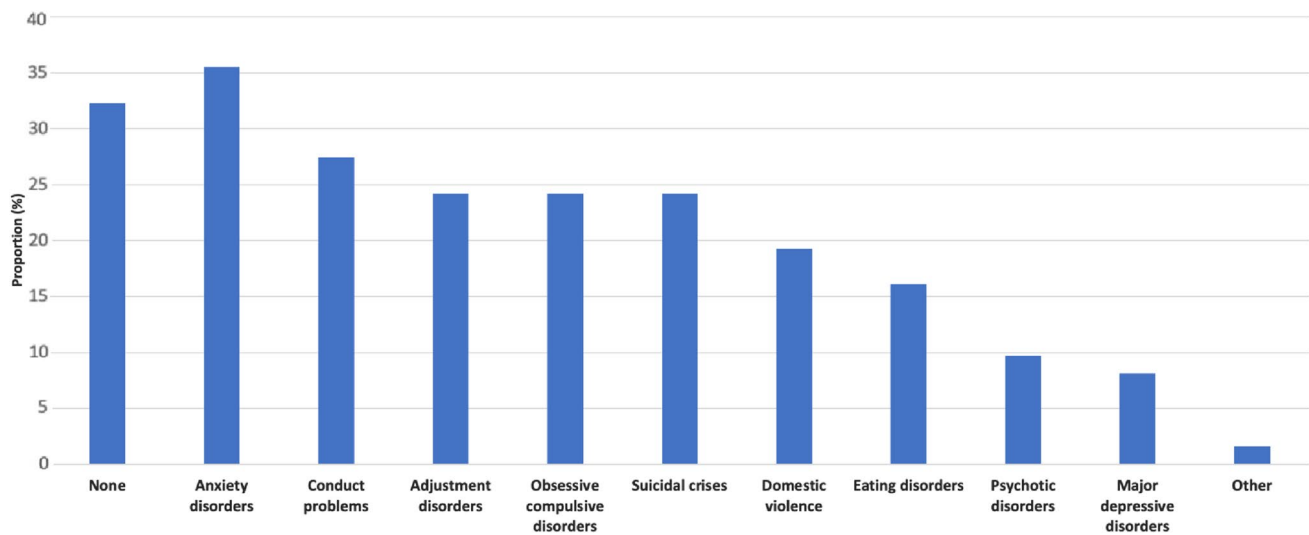
### Analysis of free-text comments

The thematic analysis of the free comments section of the questionnaire provided by a total of 19 respondents revealed that the reinforcement of inequalities is a concern mentioned by many heads of CAP services. Five respondents underlined the fact that confining families to their homes, putting financial pressure on parents, restricting access to school and/or childcare, and limiting access to child and adolescent mental health care, will inevitably put the most vulnerable kids at higher risks for developing mental health disorders. Two respondents also highlighted that the necessary reorganization of hospital services in order to be able to accommodate COVID-19 patients or closures of wards as a safety precaution decreased the number of beds available for CAP and consequently restricted access to inpatient care for adolescents. One participant drew attention to the fact that both reduced activity of youth welfare services and limited options for placements (foster care or daycare programs) during the crisis increased the length of hospital stays, thus further limiting the number of beds available in CAP services. Daycare units, if not closed, are at an elevated risk of contamination due to the more frequent contact of patients with the external environment. Accordingly, one respondent reported that the only two COVID-19-positive patients in their service were being cared for in a day unit.

Despite the adverse effects of the crisis, opportunities were also pointed out. Three respondents mentioned the rapid adoption of telepsychiatry to overcome the restriction of social distancing and to ensure or maintain contact with their patients. Two respondents pointed out that the decrease in clinical activity represented an opportunity to devote more time to research. In general, the crisis was seen as a unique occasion to rethink the way CAP services work and how services are organized ( $n = 3$ ), despite the respondents' awareness of the overall unfavorable context for patients. Two respondents were concerned that the COVID-19 implications for children were not viewed as being a priority for politicians. One respondent expressed the concern that the lockdown potentially poses an infringement on the rights of children in light of restricted or suspended access to education and mental health care.

### Discussion

This is the first survey on the impact of COVID-19 on CAP services at the beginning of the pandemic in Europe. From mid-April to mid-May 2020, 82 heads of CAP services in 20 countries responded anonymously to an online questionnaire prepared and diffused by ESCAP and its Research Academy. Notwithstanding highly variable incidence rates of COVID-19 infections between countries, the analysis revealed broadly comparable situations regarding lockdown



**Fig. 1** Disorders reported by heads of child and adolescent services as showing an increase in the amount of cases (Compared with before the pandemic, is there a percentage increase in the amount of cases you and your team are seeing for the below disorders?  $n = 59$ )

measures, school closures, and reduced access to mental health care. Despite major reorganizations of services and the lack of preparation and resources, respondents had a rather positive perception of the capacity of their services to handle the crisis. Telepsychiatry was broadly adopted to provide the continuity of care in the context of the pandemic.

Previous studies have highlighted that public health emergencies can cause mental health problems, such as Wenchuan and Lushan earthquakes [8], 2014 Ebola outbreak [9], and SARS [10]. A recent study performed in an adult UK population found that adjusting for previous long-term trends, demographic, socioeconomic, and health-related factors, by late April 2020 mental health in the UK had deteriorated compared with pre-COVID-19 trends, more markedly in younger age groups [11]. Our results concerning the impact of the COVID-19 crisis on patients and their psychopathology were mixed. While an increase in anxiety disorders, conducts disorders and suicidal crises were observed, a third of respondents highlighted no change. The impact of the COVID-19 on the content of the psychopathology (e.g. fear of contamination by the virus in anxiety disorders) was also perceived as limited (i.e. no case or < 5% of cases) by two-thirds of respondents. However, a major concern of respondents was related to a possible delayed impact of the crisis due to the reduction of service provision. With this regard, some authors have warned about a possible psychiatric second wave due to the COVID-19 pandemic [12].

Interestingly, it seems that the COVID-19 crisis is acting as a catalyst, accelerating the adoption of new technologies, including telepsychiatry. In a recent editorial, Deschamps and colleagues highlighted the current needs for the development of CAP as a specialty and the training of future child

and adolescent psychiatrists [13]. They insisted on the necessity for training to make use of the digital revolution, a topic that has rightly been addressed during the last meeting of the ESCAP Research Academy [14]. Beyond these general observations, the application of digital medicine should be specifically investigated in the context of the COVID-19 crisis, which will certainly have a long-lasting and wide-ranging effect on the field of CAP, not only on mental health care delivery and configurations but also on patient experience and expectations [15–17]. A recent ESCAP editorial [18] provides clinicians with basic guidance deemed important in light of the perceived lack of regulation.

This study is not without limitations. The overall response rate was below 50% and despite a reasonable number of questionnaires filled in at the European level, less than five questionnaires were received for most countries. Hence, results at the national level should be interpreted with caution, especially since for a given country, the lockdown and school closure measures, as well as the incidence of COVID-19 cases, can also differ greatly between regions. Due to the limited time available to launch the survey, contact emails were missing for heads of CAP services in eleven ESCAP member countries. We will endeavor to include these countries in the next two parts of the survey. Last but not least, most questions were subject to personal interpretation and some answers also required rough estimations. Therefore, it is important to keep in mind that the collected data represents general impressions from heads of services.

Despite these limitations and substantial national differences in COVID-19 infection rates during April and May of 2020, overall these results suggest a rather astonishingly similar situation in Europe. Given the novelty of this crisis



and the uncertainty of its evolution in the following months, future data from the CovCAP survey will be important to provide more information on the impact of COVID-19 on CAP services (e.g. lasting effects of the reorganization of services, increased demand as school referrals restart, etc.) and on children and adolescents' mental health.

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**Autor contributions** AR, PK, LK, and JH designed the study and wrote the protocol. JH, AR, and PK designed the first version of the questionnaire, which was then corrected and improved by LK, DA, and members of the Board of the European Society for Child and Adolescent Psychiatry (ESCAP). AR and PK conducted the analyses and produced the first draft of the manuscript. JH, LK, and DA contributed to the interpretation of the data, drafted portions and substantively revised all drafts of the manuscript for important intellectual content. All authors contributed to and have approved the final manuscript. AR and PK take responsibility for the integrity of the data and the accuracy of the data analysis.

## Compliance with ethical standards

**Conflict of interest** The authors have no conflict of interest to declare related to this study.

**Ethical approval** Ethics committee approval was not required for this anonymous web-based questionnaire study.

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